CHAPTER 2: WASTE MATERIALS MANAGEMENT

IN THIS CHAPTER

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 (US 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 US DOT, Act 207, and Act 368 definitions of hazardous material will appear as "**hazardous material-USDOT**," "**hazardous material-Act 207**," **and hazardous material-EGLE**," respectively.

AGENCIES AND THEIR LAWS AND RULES

Several different agencies are involved with overseeing proper waste management. State agencies include the Michigan Department of Environment, Great Lakes, and Energy (EGLE); the Michigan Department of Licensing and Regulatory Affairs (LARA); the Michigan Department of Agriculture and Rural Development (MDARD); and the Michigan State Police (MSP). Federal agencies include the U.S. Environmental Protection Agency (U.S. EPA), US DOT, U.S. Nuclear Regulatory Commission (US NRC) and the U.S. Drug Enforcement Administration (US DEA). In addition, local entities such as solid waste management authorities, publicly owned treatment works authorities, local fire departments, and county health departments may have jurisdiction over proper waste management under local codes.

The following identifies Michigan's common waste regulations (laws and rules implementing the law) that are overseen by EGLE's Materials Management Division (MMD):

- 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-products regulations under Part 121 (Liquid Industrial By-Products) 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-EGLE** requirements, which includes both liquid industrial by-products and hazardous waste, under the Hazardous Materials Transportation Act (Public Act 138 of 1998). (Summarized in Chapter 2.3 and 2.4 and Chapter 4)
- Used oil recycling regulation under Part 167 (Used Oil Recycling) of Act 451.(See Chapter 2.7.1)
- Disposal of batteries regulations under Part 171 (Battery Disposal) of Act 451 (See Chapters 2.7.3 and 2.7.4).
- Consumer and small electronics from business with ten or less employees under Part 173. (Electronics) of Act 451. (See Chapter 2.7.13)
- Recycling reporting under Part 175 (Recycling Reporting) of Act 451 (see Chapter 2.1.2.j)
- 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)

The following are 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 (CFR) (40 CFR 260-279).
- Federal coal combustion residuals regulations implementing the federal RCRA are contained in Title 40, Part 257 (40 CFR 257).
- Transportation regulations for **hazardous materials-USDOT** overseen by US DOT and MSP are contained in 49 CFR Parts 100 to 199. (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). (Chapters 4.5 and 6.4.3)
- Radioactive waste regulations are overseen by the US NRC. (See Chapter 10)
- Controlled substance regulations are overseen by the US DEA.
- Federal wastewater regulations implementing the federal Clean Water Act.(EGLE's Water Resource Division regulates wastewater under Part 31 (Water Resource Protection) of Act 451 and the Part 31 administrative rules. (Chapter 3)

2.1 WASTE REDUCTION, RECYCLING, AND DIVERTED WASTE

Different terms are often used to describe waste reduction practices. "Waste minimization" is a term found in the federal Resource Conservation and Recovery Act (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 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 sign their waste manifests for shipping hazardous waste, they must certify that:

- As a **small quantity generator**, they have made a good faith effort to minimize their waste generation and selected the best waste management method available that they could afford.
- 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 waste.

No matter what waste minimization term is used, you need to know what types of waste and how much waste is being generated before establishing a waste program focused on managing materials and not just sending unwanted materials for disposal. You need to determine what waste regulations apply to the materials and the options for reuse, recycling, or disposal. Community planners and developers should apply these concepts when evaluating community redevelopment opportunities, blight removal, and disaster response. Sound planning that involves a waste survey will help reduce costs and ensure worker, community, and environmental safety by ensuring materials are managed properly and timely. Resources to help in performing waste surveys and materials management planning include:

- Chapter 2.4.1 and 2.4.2 regarding waste determinations, and Chapter 12 for pollution prevention planning and energy savings tips.
- EGLE's Waste Webinar Series found at **Michigan.gov/EGLEEvents.**
- The Retired Engineers, Scientists, Technicians, Administrators, Researchers, and Teachers (RESTART) Program is a partnership between EGLE and Lawrence Tech University. RESTART provides state funded onsite energy and sustainability assessments and consultations to any Michigan business with less than 500 FTEs state-wide and public institutions of any size, including K-12 schools. Sign up for a free assessment and learn more at **RestartMI.org**.
- U.S. EPA guidance and tools for identifying hazardous waste minimization and pollution prevention practices like U.S. EPA's P2 Resource Exchange, Safer Choice Program, and the pollution prevention resources at **www.epa.gov/p2**.
- Tools like the Recycled Materials Market Directory available at **Michigan.gov/RMMD** and the Michigan Materials Marketplace at **Michigan.MaterialsMarketplace.org that** help businesses and communities find commercial recycling options and develop and scale new reuse and recycling market opportunities. –
- Northeast Michigan Council of Government's report on Recycling in Michigan, Successful Recycling Programs, Best Practices, and Diversion Potential.
- The Michigan Recycling Economic Impact and Recycled Commodities Market Assessment Report
- U.S. EPA's On the Road to Reuse: Residential Demolition Bid Specification Development Tool for assisting communities in developing bids for redevelopment.
- Michigan State Police's Local Disaster Debris Management Planning Handbook.

2.1.1 IDENTIFYING WASTES AND WASTE REDUCTION OPPORTUNITIES

Whether you are a manufacturer, service provider, non-profit, university, hospital, or municipality, waste reduction and recycling activities can 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 regulation (see Chapter 2.4). When conducting a waste survey:

- Tour the whole site and ask employees questions about work processes and the waste generated. Identify what is regulated as a hazardous waste, liquid industrial by-product, 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 areas across the site. Look both inside and outside, including drains and sewers that may collect leaks. Look at discontinued operations that may have waste within them and equipment requiring disposal. Look at production, office, and maintenance activities. Review product storage areas and institute measures to prevent excess inventories from expiring. Ensure when materials are discontinued, existing inventories are used before the replacement materials are made available, and make sure you know how the replacement product is subject to regulation when discarded before purchasing the new product. The product may be inexpensive, but disposal of any unwanted materials may not be. Institute procedures to routinely purge unwanted materials and equipment from inventory to reduce the likelihood of having a single month where your site generates larger volumes of hazardous waste, potentially subjecting your site to additional regulations, higher fees, and more reporting.
- Trace all chemical purchases for each step of every process or activity occurring at your site. 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 is 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 local EGLE District Office, Hazardous or Solid Waste Program.
- Also, check with EGLE's District Office, Air Quality Division (AQD) staff if you will install equipment to recycle that may generate an air contaminant to see if an air quality permit is required. When applying these principles to community redevelopment, be sure to consider the notifications required to address asbestos exposure concerns (see Chapter 1.16.6)
- Observe to see if employees are creating more hazardous waste by mixing other waste with known hazardous waste. For example, your site 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 must be disposed because it has expired.

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, you might save money by purchasing less material and even earn money by selling collected materials. You need to have both management and staff support to make these programs work. So, engage employees at 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.

See the U.S. EPA's Safer Choice program for finding products that perform and contain ingredients that are safer for human health and the environment. Safer Choice is an EPA Pollution Prevention (P2) program, which includes practices that reduce, eliminate, or prevent pollution at its source, such as using safer ingredients in products.

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.

If you have unwanted materials that could be used by another party, consider using the Michigan Materials Marketplace at **Michigan.MaterialsMarketplace.org** or the U.S. EPA's Comprehensive Procurement Guideline Program and Directory to find others seeking the materials you no longer need. Check with your broker, search the Michigan Recycled Materials Market Directory at **Michigan.gov/RMMD,** or contact your county recycling contact listed at **Michigan.gov/EGLEHHW,** to find out what materials are accepted in your area, 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.

For information on recycling funding, see the Guide to Operational and Funding Options for Municipal Recycling Programs, Guide to Use of Special Assessments to Fund Recycling Services and Facilities, available at MIRecycles, or see the Delta Institute Municipal Waste Procurement Tools.

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 saves money if implemented properly. While it takes energy to transport and recycle materials, the energy put into recycling can be 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 household electronics (computers, cell phones, televisions, etc.), plastic, glass, paper (including office paper and corrugated cardboard), scrap metal, wood pallets, and other wood materials as described in Chapter 2.1.2.a.

Help close the loop on recycling by finding manufacturers and suppliers of products that contain recovered materials at **epa.gov/smm/comprehensive-procurement-guideline-cpg-program#product** where you can search by the products you need.

2.1.2 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" ais 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, managed in accordance with the rules, and diverted to an environmentally preferred management method. Whether collected for recycling or diversion, the collected materials cannot be speculatively accumulated. This means that at least 75 percent of the incoming materials must be sent for recycling or to the environmentally preferred management method within a year. For questions about recycling and/or diverting solid waste, contact your local EGLE District Office, Solid Waste Program staff.

2.1.2.a Recyclable Materials

Recyclable materials are specifically defined in the law and include glass, paper, plastic, metal (bits and pieces), untreated and uncoated wood, textiles, yard clippings, and other materials specifically approved by EGLE. Recyclable 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 one year. If site, source separated recyclable materials are speculatively accumulated at a location other than the generating site, the activity is subject to the solid waste regulation, requires a solid waste permit and license, and the site must be designated as a disposal area in the county's solid waste plan, soon to be replaced by county or multi-county materials management plans. In addition to any solid waste regulations that apply to collected materials, there may be additional requirements under other EGLE regulations. For example, scrap metal bins or roll-off boxes must be covered to prevent contaminated stormwater runoff under water regulations in certain situations. Some low hazard materials, if approved by EGLE, can be accumulated for up to 3 years, at the site of generation, without being considered speculatively accumulated. See Chapter 2.1.2.g for more information on low hazard industrial waste.

Additional materials may be specified as "recyclable materials" if approved by the EGLE. Recyclable materials approved by the EGLE include the following, when processed as specified under the approval:

- Concrete Grinding Slurry
- Scrap Wood
- Ethanol Syrup
- Fish Waste Exemption
- Gypsum Drywall
- Inert Lead Painted Debris
- Manure, Paunch, and Pen Waste
- On Farm Anaerobic Digestion
- Inert Tire Materials

More details regarding the management standards that must be met for recyclable materials approved by the Director are on MMD's "Exemptions and Guidance" Web page at **Michigan.gov/SolidWaste**.

2.1.2.b Community Recycling

When recyclable materials are collected and recycled into new products, they become a valuable commodity. Recycling helps grow our economy while preserving our natural resources and the environment. For information about funding and operating a municipal recycling program, please see the following resources and contact an EGLE recycling specialist with questions:

- Guide to Operational and Funding Options for Municipal Residential Recycling Programs,
- Delta Institute Municipal Waste Procurement Tools.
- "Grants" at Michigan.gov/MIRecycles.

For information about recycling in schools, please see the Guide to Starting a School Recycling Program.

Establishing a recycling program involves more than just providing a recycle bin and collecting the materials offered. Successful recycling programs include an education component because recycling is not as simple as searching for a recycling symbol on a container. Many packages wear the "recycle" symbol but require special processing that is not available in some areas.

Before placing an item in a recycle bin, recognize the material needs to be clean and free of residues. Recyclers rely on clean, quality materials for use in manufacturing. If the materials are not clean enough, they are just taking a long trip to the landfill. People also need to know that materials like medical waste, used and unused needles, and personal protective equipment used to prevent the spread of viruses should NEVER be placed in a recycle bin as they can spread disease.

For more information on establishing and expanding recycling program, view the Recycling 101 Guide, our EGLE toolkit and resources at **RecyclingRacoons.org, Michigan.gov/MIRecycles**, and contact an EGLE recycling specialist for help.

2.1.2.c Organic Wastes

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

- **Class 1 Compostable Materials** (see Section 11502(23)) include:
  - Yard waste
  - Wood
  - Food waste
  - Paper products

- Manure or animal bedding
- Anaerobic digester digestate that does not contain free liquids
- Compostable products
- Spent grain from breweries
- Paunch
- Dead animals unless infectious or managed under the Bodies of Dead Animals Act (1982 PA 239, MCL 287.651 to 287.683)
- Food processing residuals
- Aquatic plants
- And any other material, including, but not limited to, fat, oil, or grease, that the department classifies as class 1 compostable material under section 11562 or that is approved as part of a large composting facility operations plan.

- **Class 2 Compostable Materials** (see Section 11502(25)) includes mixed municipal solid waste, biosolids, state or federal controlled substances, and all other compostable material that is not listed or approved as a Class 1 Compostable Material.

Yard waste (see Section 11506(17)) includes 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. Yard waste does not include stumps, agricultural wastes, animal waste, roots, sewage sludge, Christmas trees or wreaths, food waste, or screened finished compost made from yard waste.

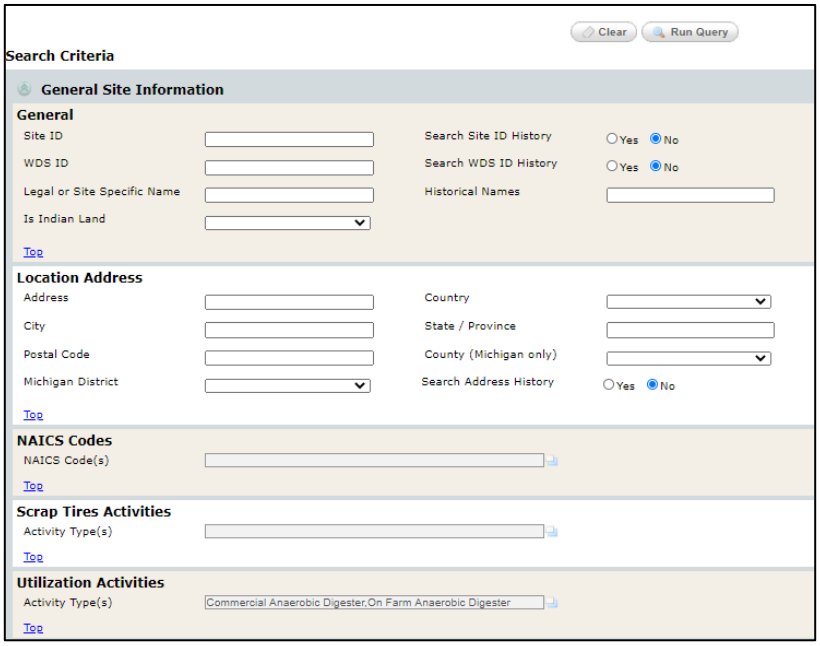
Food waste (see Section 11503(24)) includes rejected food wastes including waste accumulation of animal, fruit, or vegetable matter used or intended for food or that results from the preparation, use, cooking, dealing in, or storing of meat, fish, fowl, fruit, or vegetable matter.

Wood (see Section 11506(15)) includes trees, branches and associated leaves, 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.

Food processing residuals (see Section 11503(23)) include:

- Residuals of fruits, vegetables, aquatic plants, or field crops, including such residuals generated by a brewery or distillery.
- Otherwise unusable parts of fruits, vegetables, aquatic plants, or field crops from the processing thereof.
- Otherwise unusable food products which do not meet size, quality, or other product specifications and that were intended for human or animal consumption.

Yard wastes 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 wastes are composted at composting facilities operated in accordance with **Part 115**.



Yard waste and other organic recyclable materials like food waste may also be recycled at an anaerobic digester, a gasification plant, or composting site (see Section 11506(6)). To locate composting facilities in Michigan or to find more information on composting regulations, go to **Michigan.gov/EGLECompost**. To locate anaerobic digesters in Michigan, go to the Waste Data System at **EGLE.State.MI.US/WDSPI**, select "Utilization Activities," "Commercial Anaerobic Digester" and/or "On Farm Anaerobic Digester," and "Done," then scroll to the top of the page and select "Run Query."

Food processing residuals and food waste 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. Find more information on food waste recovery at **Michigan.gov/FoodWaste.**

For questions about organics recycling, including whether an activity is exempted from solid waste regulation or requires a solid waste permit, license, or registration, contact your EGLE District Office, Solid Waste Program staff. To help residents compost at home, consider sharing EGLE's Home Composting Guide for Residents.

2.1.2.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 exclusion from the waste regulations include the following materials when managed as specified:

- Rock
- Trees, stumps, and other land-clearing debris, if all of 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 one 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 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, U.S. 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.

  For more information on handling dredge materials, see the guide for Managing Dredge Materials.

- 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 has been removed from a public right-of-way, has been stockpiled or crushed for reuse as aggregate material, and does not include exposed reinforcement bars.
- 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 site of contamination under Part 201 of Act 451.
- 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 #17-I-001.

2.1.2.e Beneficial Use By-Products

In September 2014, Part 115 was 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:

- **Cement Kiln Dust/Lime Kiln Dust** - Particulate matter collected in air emission control devices serving Portland cement kilns and lime kilns.
- **Coal Bottom or Wood Ash** - Ash particles from combustion of coal or any type of ash or slag resulting from wood burning.
- **Coal or Wood Ash** - Material recovered from an air pollution control system or non-combusted residue from combustion of coal, wood, or both.
- **Dewatered Concrete Grinding Sludge –** Sludge collected from grinding concrete when an agency builds or repairs a public roadway.
- **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.
- **Foundry Sand** - Silica sand used in metal casting processes from ferrous or nonferrous foundries.

- **Lime Softening Residuals** – Material recovered from the treatment and conditioning of water for domestic use or community water supply.
- **Mixed Wood Ash** - Material recovered from air pollution control systems or non-combusted residue from combustion of wood, scrap wood, railroad ties, and tires.
- **Pulp and Paper Mill Ash** - Non-combusted residue remaining after combustion of coal, wood, pulp and paper mill material, wood, or biomass pellets, railroad ties, tires, and scrap wood.
- **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.
- **Soils Washed or Removed from Sugar Beets**
- **Spent Media from Sandblasting** – Spent media from sandblasting with uncontaminated soil, newly manufactured, and unpainted steel.
- **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 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 resources found on EGLE's Solid Waste Program, Exemptions and Guidance Web page.

- EGLE Beneficial Use Matrix
- EGLE Beneficial Use Options Condition Summaries 1, 2, 3, 4, and 5

2.1.2.f Petitions to Classify Solid Waste

For solid waste not otherwise excluded from regulation by statute or rule, a waste generator may petition EGLE 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 material.
- a site separated material.
- a low hazard industrial waste.
- a recycled agricultural or silvicultural material (see Part 115 Rules, Rule 111).
- an inert material appropriate for specific reuse (see Part 115 Rules, Rule 117).
- a compostable material (see Part 115 Rules, Rule 121).

When seeking to classify a waste, a petitioner must submit the information specified under Rule 118a to EGLE 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.

2.1.2.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, Section 11553(7), which allows the generator to:

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

A material can be reclassified to a low-hazard industrial waste if hazardous substances in representative samples of the material, using U.S. EPA method 1311, 1312, or any other EGLE approved method that more accurately simulates mobility, do not leach above the higher of the following:

- One-tenth the hazardous waste toxicity characteristic threshold as set forth in rules promulgated under Part 111.
- Ten times the generic residential groundwater drinking water cleanup criteria as set forth in rules promulgated under Part 201.

The waste must be at or below the threshold when tested in accordance with Part 115, Rule 302(2)(a) and receive EGLE approval to be managed as a low hazard industrial waste under the solid waste regulations.

2.1.2.h Diverted Waste

Part 115 was amended to remove regulatory barriers to the collection of materials not well-suited to traditional landfill disposal. Section 11521b was added in 2014 to establish waste diversion center operating requirements that allow for the collection off-site, source separated waste. These provisions only apply to solid waste that can lawfully be disposed in a licensed municipal solid waste landfill or municipal solid waste incinerator if the collected waste is being diverted to an environmentally preferred management method. Prior to the waste diversion amendment, all household hazardous waste collections were subject to the Part 115 solid waste transfer facility permitting, licensing, operating requirements, as well as the county's solid waste planning requirements.

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.
- documented (waste types, volumes, and disposition) for at least 3 years.

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.

Diverted waste is:

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

In December 2022, Section 11521b of Part 115 was amended and now requires waste diversion centers collecting more than 50 tons per year whose primary business activity is to divert waste to:

- Register annually by November 15th.
- Report annually by November 15th.
- Be consistent with the county or regional materials management plan.

To learn more about the Part 115 solid waste operating center requirements for managing diverted household waste, see the law.

Additional requirements apply to diverted waste collected from non-households like schools, non-profits, small businesses, churches, etc. These collections must meet the Part 115 waste diversion center operating requirements and the Part 121 liquid industrial by-products designated facility requirements for any liquids. Learn more about the diversion center regulations by:

- Viewing the Implementing a Universal Waste and Household Hazardous Waste Collection in your Community Recorded Webinar.
- Review Section 2.3 of this Chapter.
- See the Household Hazardous Waste Collection Center Resources webpage.

Visit Michigan.gov/EGLEHHW to learn more about household hazardous waste, their hazards and community collection options. For resources on safe disposal of household medications, please see EGLE's interactive map at Michigan.gov/EGLEDrugDisposal. To quickly learn what is a hazardous waste, view our EGLE Classroom Hazardous Waste 101 video and subscribe to EGLE's YouTube channel at Youtube.com/MichiganEGLE.

2.1.2.i Coal Combustion Residuals

In December 2018, Sections 11511a, 11512a, 11519a, 11519b, and 11519c of Part 115 were amended to more closely align Michigan's solid waste regulations with changes in RCRA, Subpart D, 40 CFR Part 257. RCRA, Subpart D was amended to provide standards for the disposal of coal combustion residuals (CCR) in landfills and surface impoundments. RCRA. Subpart D now has

specific requirements for the management of CCR generated by electric utilities and independent power producers. Part 115 was amended to set permitting, licensing, and operational requirements for the following:

- the storage of CCR in surface impoundments and
- the disposal of CCR in landfills or surface impoundments, where the waste will remain in place after closure.

The CCR amendments do not apply to CCR disposed in a permitted and licensed Michigan Part 115 municipal solid waste landfill.

Under the federal rules, CCR includes coal bottom ash, fly ash, boiler slag, flue gas desulfurization materials, or fluidized -bed combustion ash. Under the Part 115 amendments, CCR is defined as "coal ash" and is referenced in this guide as CCR. CCR, when utilized as a beneficial use by-product (see Chapter 2.1.2.e above), is exempted from the new Part 115 disposal provisions, assuming the beneficial use provisions are met. Note however, that CCR stored in a surface impoundment prior to re-use as a beneficial use by-product, is subject to the CCR storage impoundment requirements found in Part 115.

Under the 2018 amendments, existing CCR surface impoundments and landfills must be closed by December 2020 or be licensed under Part 115 by December 2020. CCR landfill and surface impoundments now have siting criteria, structural stability analyses, construction and design criteria, fugitive dust control, and numerous other requirements that must be included in Part 115 licensing. They must also have groundwater monitoring programs and there are requirements to perform corrective action in the event of a release to protect human health and the environment. Under the new regulations, all designated CCR facilities must also maintain publicly accessible internet sites which provide access the facility operating record, as well as engineering reports and plans.

2.1.2.j Recycling Reporting

In June 2016, Part 175, Recycling Reporting, of Act 451 became a law. Part 175 requires certain recycling facilities to report the amount of paper and paper products, plastic and plastic products, glass, textiles, ferrous metals, nonferrous metals, and single stream recyclables recycled each year.

To better measure the amount of materials recycled in Michigan, recycling facilities not required to report are encouraged to report voluntarily using the Michigan Recycling Reporting system, housed in Re-TRAC CONNECT. Learn more about recycling reporting by viewing the What is Recycle Search video, How to Register video, and other resources available on the Part 175 Michigan Recycling Reporting Website.

2.2 SOLID WASTE DISPOSAL AND LITTERING

No matter how effective your waste reduction and recycling programs are, you will probably 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 requires 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 that are not hazardous waste.

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

- Used oil (see Chapter 2.7.1 and 2.7.2)
- Whole tires (see Chapter 2.2.2)
- Liquid industrial by-products (see Chapter 2.3)
- Returnable beverage containers
- Lead acid batteries (see Chapter 2.7.3)
- Yard clippings and compost (see Chapter 2.1.2.c)
- Medical waste (See Chapter 2.5)
- 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 (Chapter 2.4)
- Low level radioactive waste (see Chapter 10)
- PCB waste unless landfill meets specific requirements (see Chapter 4)

Used oil is specifically 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, see the Landfill Prohibited Materials Guide.

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 EGLE District Office, Solid Waste Program staff.
- 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, batteries, pharmaceuticals, 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.

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 agent after reviewing the county planning import/export report and **description** to confirm that is acceptable under the provisions of your county's solid waste management plan, and the receiving county's solid waste management plan. Those plans identify where solid waste can be transported for disposal within Michigan. See the list of County Designated Planning Agency Contacts on EGLE's Materials Management Planning Website at going to **Michigan.gov/EGLEMMP** and selecting the "Solid Waste" tab on the left of the page, then "Solid Waste Planning." 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 plans.

Under the 2022 solid waste amendments, new materials management plans were established. The first step of the materials management plan approval and development process is to formally identify the County Approval Agency through the submittal of a Notice of Intent which is due by July 6, 2024.

Prior to approval of a new materials management plan, each county has an existing solid waste management plan. The solid waste management plans focuses on ensuring adequate disposal capacity and assures that all non-hazardous solid waste generated in the county is collected and recovered, processed, or disposed at facilities that comply with state laws and rules. The new materials management plans will transition EGLE's policy framework to focus more on materials management and putting unwanted materials to their highest and best use.

Until new materials management plans are approved, current solid waste management plans will remain in effect.

To learn more about what materials are regulated as a solid waste, scrap tire, liquid industrial by-product, medical waste, hazardous waste, etc., view the recorded Waste 101 webinar and Waste Characterization webinar included in the Waste Webinar Series.

Waste characterization requirements apply to all non-households including manufacturing, commercial service operations, non-profit operations, churches, hospitals, municipalities, etc.

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 supporting information used to determine the management, transport, treatment, storage, and disposal standards that apply.
- ✓ Keep records of waste evaluations for 3 years

Currently, there are no EGLE 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. 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 EGLE District Office, Solid Waste Program staff with questions on:

- 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-products regulations (see Chapter 2.3).
- How to determine if 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, view the "Hazardous Waste Characterization and Generator Status" recorded webinar from EGLE's Waste Webinar Series, available at **Michigan.gov/EGLEevents** and/or review Chapter 2.4.

Manifests are not required for hauling and disposing of solid waste, except for scrap tires (see Chapter 2.2.2). Although you don't have to manifest solid waste, you should 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.

Contact your EGLE District Office, Solid Waste Program staff, 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 **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. To quickly learn about what can and cannot be burned in Michigan, see the Mi EnviroMinute YouTube **video** on Open Burning and consider subscribing to EGLE's YouTube channel, **Youtube.com/MichiganEGLE**.

Open burning may also be regulated by the local unit of government. Contact local authorities about their ordinances. Additional information about open burning and reaching local authorities can be found at EGLE's Open Burning website at **Michigan.gov/OpenBurning** and **Michigan.gov/BurnPermit** (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

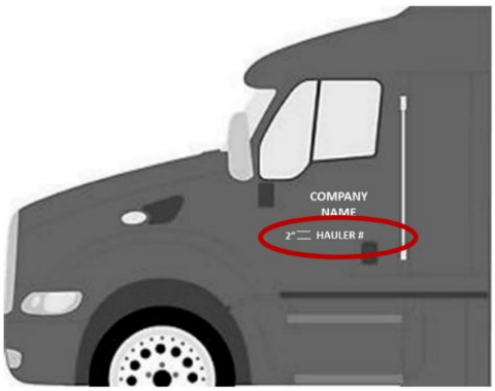
Part 169 was amended in January 2015. Haulers are now required to maintain a bond and there are amended requirements for displaying the scrap tire hauler registration on a vehicle transporting scrap tires, for record keeping and increased penalties for violations of the statute. See Section 16905 for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

Visit **Michigan.gov/ScrapTires** for more information.

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 other equipment discarded tires.

The basic requirements for scrap tire generators are as follows:

- 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 site 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 that can accept used tires is found at **Michigan.gov/ScrapTires** under the "Quick Links" heading titled "Registered Haulers." 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 EGLE 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 transportation record 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.
- 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.

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, contact EGLE's Scrap Tire Program staff at 517-614-7431 or EGLE-ScrapTire@Michigan.gov, or contact Scrap Tire Program staff in your EGLE District Office (See Appendix C).

2.3 LIQUID INDUSTRIAL BY-PRODUCTS

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-products." The changes became effective on March 16, 2016. The changes resulting from the amended law are reflected throughout this chapter and guidebook.

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

- EGLE's Hazardous Waste Program oversees the management of liquid industrial by-products at generator sites, when in transport, and at "designated facilities" receiving liquid industrial by-products.
- EGLE's Hazardous Waste Transporter Program oversees the permitting and registering of liquid industrial by-products transporters (see Chapter 4.4.11).
- EGLE's Water Resource Division (WRD) oversees the discharge and permitting of liquid by-products into surface water and groundwater (see Chapter 3).
- Local publicly-owned treatment works (POTW) with discharge permits issued pursuant to Part 31 oversee the discharge and permitting of liquid by-products from businesses connected to their sanitary or combined sanitary sewer systems (see Chapter 3). Waste generators must obtain permission from the sanitary or combined sewer authority before discharging waste to the sanitary or combined sewer system. Discharge of liquid industrial by-products to any storm sewer is prohibited.
- EGLE's On-site Wastewater Program oversees the discharge and permitting of sanitary wastewaters to on-site septic systems in coordination with local health departments (see Chapter 3.2.2). These on-site septic systems are permitted and inspected by the local health departments. They are only designed to handle sanitary wastewaters from bathrooms, kitchens and laundry devices. Some communities may have local ordinance requirements in addition to the state regulations implemented by the local authorities. The local governing agency of these ordinances will vary from community to community and is typically the county, city, or township zoning or building office, or the public health department's environmental health section.

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

2.3.1 DEFINING LIQUID INDUSTRIAL BY-PRODUCTS

Liquid industrial by-products generally include liquid materials that:

- are discarded by non-households,
- fail the paint filter liquids test (see Chapter 2.4.2.c),
- are not exempted or excluded under Part 121 of Act 451, and
- are not regulated as hazardous waste or medical waste (see Chapters 2.4 and 2.5).

Common examples of liquid industrial by-products include used oil that is being recycled, storm sewer and some sanitary sewer clean-out wastewaters or sludges, car wash catch basin waste, grease trap clean-out residue, industrial and commercial wastewaters (like wastewaters or on-site septic system sludges from food processing, slaughterhouses, or laundromats), some precipitation removed from secondary containment structures (see Chapter 4.1), antifreeze that is not a hazardous waste, some off-specification commercial chemical products, and liquids exempted from hazardous waste regulation (e.g., hazardous secondary materials, brine, and other discarded liquids that can no longer be used for their original intended purpose without reclamation or treatment). Liquid industrial by-products also include most discarded liquids pumped and hauled over public roadways not subject to hazardous waste regulation, and liquids and sludges sent to a solid waste solidification facility prior to landfilling.

For a discarded material to be excluded from the Part 121, liquid industrial by-products, regulations, the material needs to be specifically excluded under the statute. Common exclusions found under Part 121, Section 12101(n) include:

- Hazardous waste from small or large quantity hazardous waste generators subject to the Part 111, hazardous waste, regulations (see Chapter 2.4)
- Septage waste or on-site septic system wastewaters and sludges removed from systems handling sanitary wastewaters from bathrooms, kitchens, and domestic laundry devices managed under the Part 117, Septage Waste Servicer, regulations (see Chapter 3.2.2)
- Medical waste or infectious or potentially infectious blood, body fluids, or body parts from humans or animals which are subject to the Act 363, Public Health Code, Part 138, medical waste, regulations (see Chapter 2.5 and 2.6).
- Discarded liquids from households subject to the solid waste regulations found under Part 115 (see Chapter 2.2).

- Fats, oil, and grease sent for rendering and managed in accordance with Act 239, the Bodies of Dead Animals Act, of 1982, implemented by the Michigan Department of Agriculture and Rural Development. For additional regulations to protect water related to fats, oil, grease, and petroleum-based used oil, please see Chapter 4.
- Wastewater discharges authorized by a Part 31 permit, rule or order issued by WRD (e.g. a publicly owned treatment works (POTW) possessing a Part 31, National Pollutant Discharge Elimination System (NPDES) or groundwater discharge permit) and any sanitary or combined sewer system wastewaters, including system maintenance wastewaters, specifically subject to the permit. This exclusion also applies to wastewater discharged to the sanitary or combined sewer system possessing a Part 31 discharge authorization **IF** the POTW has authorized the generator's discharge to their system. Any management of liquid industrial by-products by the generator before it is discharged to the sanitary or combined sewer system is subject to the liquid industrial by-products generator requirements. This exemption does not apply to any liquid industrial by-products transported by motor vehicle or rail to a receiving POTW. For information on Part 31 permits by rule, see Part 31, Part 22 Rules, Rule 2211; and Chapters 3.2.4 and 4.1.

If liquid industrial by-products are discharged to a POTW for disposal, the site must keep a copy of receiving facility approval and records of the liquid industrial by-product 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).

Sanitary or combined sewer system clean-out waste is excluded from Part 121 if the sewer system and the maintenance waste is subject to a Part 31 wastewater discharge permit, rule, or order. If sanitary sewer or combined sewer system clean-out waste is subject to a Part 31 discharge authorization, any direct or indirect release of sewage wastewaters occurring when removing, transporting, treating, and/or disposing of the waste that is not authorized under the permit must be reported as a sanitary sewer overflow (SSO) or combined sanitary overflow (CSO) to WRD in accordance with Part 31, Section 3112a.

Contributing municipalities or "satellite" sanitary and combined sewer systems that do not possess a Part 31 discharge authorization, must manage their sanitary sewer or combined sewer system clean-out waste as a liquid industrial by-product. Satellite systems with a **separate** sanitary sewer system can also use a Part 117 permitted septage hauler when the sanitary sewer system wastewater is not land applied and it is transported to the same sanitary sewer system or receiving POTW. If any sanitary sewer or combined sewer clean-out wastes are transported to a receiving POTW other than the destination specified in the Part 31 discharge permit or permit from the receiving POTW, the wastewater must be managed as a liquid industrial by-product. All clean-out waste from sewer systems that only collect and convey stormwater also must be managed to meet the liquid industrial by-products regulations. See the summary table identifying the different regulations that apply to wastewaters transported via public roadway for recycling or

disposal for more information and contact your EGLE District Office in the following programs with questions: Hazardous Waste Program, On-site Wastewater Program or Septage Program, Groundwater Permit or NPDES Permit Program.

Other exclusions from Part 121 are found under Section 12102a which identifies materials not specified as liquid industrial by-products. Some of the more common liquid industrial by-product exclusions found in this section include:

- Materials that can be used or reused as effective substitutes for commercial products, used or reused as an ingredient to make a product, or returned to the original process if the material does not require reclamation prior to use or reuse AND if they are not burned for energy or as fuel, AND they are not applied to the land or used in products applied to the land.
- On-specification petroleum-based used oil, as defined under the Part 111, hazardous waste, regulations and Section 12102a, that is burned to recover energy or used to produce a fuel and it is authorized for use as fuel under a Part 55 permit or permit exemption.
- Liquids fully contained in a manufactured article, until the liquid is removed from the manufactured item or when the manufactured item is destined for recycling or disposal (e.g. when a salvaged auto is destined to be shredded, the fluids must be removed and managed to meet the liquid industrial by-products regulations).
- When managed as specified in Section 12102a, the following materials are excluded from liquid industrial by-products regulation:
    - A liquid by-product sample transported for testing to determine its characteristics or composition, until discarded.
    - Liquid generated in the drilling, operation, maintenance, or closure of a well.
    - Liquid vegetable or animal fat oils transported directly to biofuel producer for producing biofuel.
    - Off-specification fuel generated in a pipeline from the mixture of two adjacent fuels, if processed into fuel.
    - Off-specification fuel product transported directly for refining into fuel.
    - Liquid or sludge and associated liquid authorized for land application under Parts 31 or 115 – (e.g., biosolids per Part 31, Part 24 rules, see Chapter 2.7.18).
    - Residual amounts of liquid remaining in a container that previously contained liquid industrial by-product **IF** *the container was emptied using common practices employed by industry for that container type* **AND** residues do not exceed:
        - 1 inch in the bottom of the container, or
        - more than 3% by weight for containers <110 gallons, or
        - 0.3% by weight for containers > 110 gallons in size.

- Residual liquid in a container because of transportation of a solid waste in that container.
- Brine authorized for use as dust and ice control under Parts 31 and 615.
- Food processing residuals per Section 11503, or site, source-separated material approved by EGLE under Part 115 used to produce biogas under closed system anaerobic conditions authorized by Part 55.
- Liquid approved by the Director for use as a biofuel that is Part 55 authorized, not speculatively accumulated, and is transported directly to biofuel burner.

For help determining what is a liquid industrial by-product and what is excluded, contact your EGLE District Office, Hazardous Waste Program staff.

2.3.2 LIQUID INDUSTRIAL BY-PRODUCTS GENERATOR REQUIREMENTS

Sites that generate liquid industrial by-products are required to comply with the following:

- 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 the most recent shipment for treatment, storage, or disposal. View EGLE's recorded Waste Webinar Series at **Michigan.gov/EGLEEvents**, or see Chapter 2.4, to learn how to determine whether you have a solid waste, liquid industrial by-product, or hazardous waste, Consider using EGLE's optional fillable form for documenting the waste determination.

  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 the management, transport, treatment, storage, and disposal standards that apply.
  - ✓ Keep records for three years

- 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.
    - Example: Mark 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.

- Containers of used oil must be labeled "Used Oil" - see Chapter 2.7.1 for details regarding the requirements specific to used oil and Chapter 4.

- Manage liquid industrial by-products 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-products. For liquid industrial by-products, 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.

> See **Operational Memorandum 111-20** for more information about closed containers.

  - 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 latching, gasketed cover can be used. Containers can also be closed in accordance with other state law. Documentation of the applicable state law is recommended.

Non-pressurized mobile oil drain pan

  - Containers must be compatible with the type of liquid industrial by-products being stored in them. The SDS for the virgin ingredients may provide some recommendations or see Web sites like **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-products that have 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 LARA, 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 Chapter 4 for more information).

- Liquid industrial by-products in underground storage tanks that are a regulated substance under Part 211 (Underground Storage Tanks) of Act 451 would have additional requirements under the tank regulations implemented by LARA, Bureau of Fire Service, Storage Tank Division (see Chapter 4).

- There are no state accumulation time limits for storing liquid industrial by-products at the site where it is generated, but local ordinances may have limits.

TABLE 2.2 Liquid Industrial By-Products Generator and Used Oil Generator Accumulation Summary (includes most used oil) - for any amount generated in a calendar month[1].

Maximum amount that can be accumulated on-site	Maximum time period before liquid industrial by-products must be shipped
No maximum amount under state regulations. If the generator is also a designated facility receiving liquid industrial by-products from off-site, there are many additional requirements.	No state time limit for generators if containers are in good shape and closed. Check local ordinances for any time limits.

[1]See Part 121 for possible liquid industrial by-product exemptions and designated facility requirements.

- If operating an on-site reclamation, treatment, or disposal facility, keep records of all liquid industrial by-products produced and reclaimed, treated, or disposed at the facility for at least three years unless the 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 your EGLE District Office, Groundwater Discharge Program staff.

- Complete and maintain proper shipping documents demonstrating proper recycling or disposal. As of March 2016, Site ID numbers are no longer required for generators shipping liquid industrial by-products and/or very 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 the Part 121 requirements are encouraged to use their Site ID number if they have one. If using the e-Manifest system, a Site ID is required. If no Site ID number is assigned and the e-Manifest system is not used, 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-products.
  - Use “MIVSQG” for manifests documenting shipment of only VSQG liquid hazardous waste.
  - Use “MIVSQGLIB” for manifests documenting shipment of both VSQG liquid hazardous waste liquids and liquid industrial by-products.

As of March 2016, liquid industrial by-products and/or very small quantity generator hazardous waste liquid shipping documents may be a log, invoice, bill of lading, Uniform Hazardous Waste Manifest, or other record in written or electronic format (see liquid industrial by-products optional fillable shipping document). Regardless of format the liquid industrial by-product shipping document must include:

- 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.

At the time of shipment, the generator must certify the shipping document fully and accurately describes the liquid industrial by-products, that the liquid industrial by-products are 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.

Upon pick-up, the transporter must sign the shipping document with a certification statement confirming the liquid industrial by-products were 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-products only to the designated facility identified on the shipping document by the generator. The designated facility can 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-products from multiple sites. 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-products accepted, the consolidated shipping document number, and the designated facility Site ID number. See Chapter 2.4.5.a and the Liquid Industrial By-products Frequently Asked Questions for more information about consolidated shipping documents.

Shipping documents must be maintained on file for at least three years from the last date of shipment. If the generator does not receive confirmation of acceptance of the liquid industrial by-product shipment from the designated facility, the generator must attempt to obtain confirmation by contacting the designated facility and the transporter. If resolution cannot be achieved after contacting both parties, the generator must notify EGLE of the

situation. Consider using the Generator Tracking Log for Manifests/Shipping Documents to ensure timely notification of receipt of liquid industrial by-products is provided by your designated facility(ies).

- Hire a permitted and registered transporter to take the liquid industrial by-products to an appropriate receiving facility (see Chapter 2.4.10) or meet the requirements to haul the company's own waste (see Chapter 2.4.5).
- Liquid industrial by-product generators may self-transport waste generated on or in equipment or property in which they have an ownership interest. Self-transport exempts the generator from permitting and registering as a transporter, but they would be required to comply with all other requirements including maintaining the required financial responsibility in case of an accident or spill, as required in under Act 138.
- 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 the incident and response measures and keep on-site and submit a copy to EGLE if requested. A summary table of state and federal regulations that require release reporting is included in Chapter 6 and at **Michigan.gov/ChemRelease**. Some liquid industrial by-products 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).
- If using pump and haul tanks, see the Liquid Non-hazardous Waste (By-Products) Holding Tank guidance for more information.
- If emptying tanks or containers, see the Emptying Tanks or Containers guidance.

See Chapter 2.1, including Chapter 2.1.2, for applicable solid waste regulations requiring solid waste permitting, licensing, and planning authorizations. See Chapter 2.3.3 for additional Part 121 regulations requiring emergency planning, time limits, and reporting all apply when receiving liquid industrial by-products from off-site.

Beyond reviewing Part 121, see if additional containment requirements apply when handling threshold management quantities of materials regulated under the federal Spill Prevention Control and Countermeasure (SPCC) for oils and the state Part 5 rules for "Spillage of Oil and Polluting Materials" under Part 31, Water Resource Protection, of Act 451. See Chapters 4 and 6 for more information on water regulations requiring containment and don't forget to review local ordinance requirements. Depending on the liquid by-products generated, emergency planning may be required under other regulations (e.g. Part 5 rules mentioned above) if threshold management quantities are reached (see Chapter 6).

2.3.3 LIQUID INDUSTRIAL BY-PRODUCTS DESIGNATED FACILITY REQUIREMENTS

A liquid industrial by-products designated facility is a facility that receives liquid industrial by-products from off-site via public roadway. The facility may store, treat, reclaim, and/or dispose of the liquid industrial by-products and/or residuals from the treatment and/or reclamation of the liquid industrial by-products. A liquid industrial by-products designated facility may require a solid waste processing permit and license under Part 115, a POTW permit under Part 31, an air use permit under Part 55, and/or the equipment may be exempt from permitting and licensing, depending on the types of the materials accepted, the activities the site performs, and the size of the facility. Designated facilities receiving liquid industrial by-products that are determined to be a solid waste disposal area would need to be consistent with the county's solid waste management plan and would require a solid waste permit and license prior to construction and operation.

To understand the permitting, licensing, notification, registration or other authorization(s) required for site-specific designated facility activities, see the Permit Information Checklist at **Michigan.gov/EGLEPermits**. For information on wastewater treatment and on-site wastewater regulations, please see Chapter 3. To learn about solid waste construction permits and operating licensing go to **Michigan.gov/SolidWaste** and select "**Solid Waste Disposal Areas**" to find license and permit applications and instructions. To learn about county solid waste and materials management planning go to **Michigan.gov/EGLEMMP**. In addition to any requirements provided under the other authorizing environmental regulations, a liquid industrial by-products designated facility must be managed to meet the designated facility requirements found in Part 121 and highlighted below.

Many designated facilities are Part 31 permitted POTWs. Beyond processing sanitary and combined sewer system wastewaters, the POTWs also accept incoming shipments transported via public roadway. Depending on the generator and type of material shipped, these materials may be subject to regulation under the facility's Part 31 discharge permit, the Part 117 septage regulations for on-site septic systems, or the Part 121 liquid industrial by-products regulations that apply to all other liquids, most notably commercial and industrial wastewaters. To learn more about the various regulations that apply to incoming shipments, see Chapter 2.3.1 and 2.3.2; the Receiving Facilities Reporting Requirements Guide; the recorded webinars included in the Waste Webinar Series available at **Michigan.gov/EGLEEvents**; and Chapter 3.

Designated facility waste profiling and approval processes for off-site waste shipments should include a review of the generator's records and regulatory conclusions. All non-households must characterize their waste streams and create a record of their waste determination. Only household-generated, discarded materials associated with daily living activities are excluded from the waste characterization requirements.

Under Part 121, designated facilities receiving liquid industrial by-products must:

- Notify EGLE MMD of the site's liquid industrial by-products activities and obtain a Site ID using the, EQP5150 Site Identification form. Most designated facilities accepting liquid industrial by-products also generate and transport liquid industrial by-products (see Liquid Industrial By-products Generator guidance, Chapter 2.3.1, and Chapter 4). When notifying of regulated waste activities, all activities occurring at the site must be identified.
- Maintain characterization/profiling records for the liquid industrial by-products received.
- Only place liquid industrial by-products in containers and tanks in good condition, unless other structures are specifically authorized under other EGLE regulations (e.g., surface impoundment authorized under Part 31 or a solid waste solidification unit authorized under Part 115). Liquid industrial by-products containers and tanks should be marked or labeled to identify their contents to ensure the hazards from the materials are easy to identify during any emergency response.
- Except as otherwise expressly authorized by EGLE environmental regulations, manage the liquid industrial by-products to prevent it from being discharged into the soil, surface water or groundwater, a drain or sewer, or air in violation of the air pollution control regulations.
- Ensure storage of liquid industrial by-products is protected from weather, fire, physical damage, and vandals.
- Ensure that all vehicles, containers, and tanks used to hold liquid industrial by-products are ALWAYS closed or covered, except when adding or removing liquid industrial by-products.
- Only accept a shipment if they are the designated facility listed on the shipping document certified by the generator and transporter. Designated facilities are not required to certify the shipping document.
- Provide confirmation of receipt of the shipment to the generator or generator representative (transporter in the case of a consolidated shipping document). The confirmation may be written or electronic (documented phone call, email, receipt, shipping document or manifest copy). Note, for consolidated shipping documents, the transporter fulfills the generator duties in completing the shipping document. Once delivered, the transporter must provide a receipt to the generator that includes:
  - Transporter's name
  - Driver's signature
  - Date of pickup
  - Type and quantity of liquid industrial by-product accepted/shipped
  - Consolidated shipping document number, and
  - Designated facility name.

- Only accept liquid industrial by-products from Act 138 permitted and registered liquid industrial by-products transporters possessing adequate insurance documented on an **MCS-90** endorsement form and carrying verification of registration and permit on the vehicle in written or electronic format, unless:
  - the person transporting the liquid industrial by-product is the generator who generated the material on or from property or equipment in which he/she owns, or
  - the transport vehicle is owned and operated by a local, state, or federal government, or any other political subdivision (e.g. state university with elected regents) hauling their own by-product(s).
- Process or ship the liquid industrial by-products to another site within one year unless:
  - It is stored for reclamation,
  - Not less than 75% of the cumulative amount, by weight or volume, of each type of liquid industrial by-product that is stored is reclaimed or transferred to a different site for reclamation during that calendar year, ***and***
  - Documentation is maintained to verify any storage beyond a year is authorized for each waste stream.
- Have a plan to respond to and minimize hazards to human health and the environment from unplanned sudden and non-sudden releases.
- Meet waste diversion requirements found under Part 11521b if diverting household liquids from being landfilled.
- Retain and make all required records available for three years. Electronic recordkeeping is acceptable, but must be readable, have all the required information, and be accessible.
- Train employees handling liquid industrial by-products in proper handling and emergency response as appropriate for their job duties and document the training. Take appropriate immediate action to protect public health, safety, and welfare and the environment, including notification of local authorities and the pollution emergency alerting system if a fire, explosion, or discharge of liquid industrial by-product occurs that could threaten human health, the environment, or has reached groundwater or surface water, including notifying EGLE's Pollution Emergency Alert System at 800-292-4706 and submit any follow-up reports required.
- Submit a liquid industrial by-products report identifying the type and amount of liquid industrial by-products handled at the site during the previous calendar year. The report must be submitted to EGLE by April 30 of each year using the EQP1602 form and instructions. See the summary table identifying the different regulations that apply to wastewaters transported via public roadway for recycling or disposal for more information.

Contact your EGLE District Office Staff in the following programs with questions: Hazardous Waste Program, On-site Wastewater Program or Septage Program, Groundwater Permit or NPDES Permit Program.

For additional details on the generator, transporter, and designated facility requirements for handling liquid industrial by-products, see the **Liquid Industrial By-Product Generators** guidance and Frequently Asked Questions (FAQs). For questions about the liquid industrial by-products designated facility requirements, contact your EGLE District Office, Hazardous Waste Program staff.

2.4 HAZARDOUS WASTE

All waste generators, except households, are required by law to:

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

The hazardous waste regulations are prescriptive and designed to prevent any releases of hazardous waste. They apply to all businesses, not just manufacturing. This includes service industries, governmental operations, health care, etc.

The hazardous waste regulations require lots of records. So, having a single record keeping system where all the waste determination records, manifests, shipping documents, land disposal restrictions, contingency plans, training and inspection records, etc. are filed is highly recommended. This makes it is easy to share records during an inspection to verify the hazardous wastes are managed properly.

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-USDOT, hazardous material-EGLE, and hazardous material-Act 207.** Each term has specific regulatory definitions and requirements. See Chapter 4 and Appendix B to learn more about the definitions and the differences in the regulations that govern the management of these materials.

All hazardous waste that is required to be shipped with a Uniform Hazardous Waste Manifest is defined as a **hazardous material-USDOT**. There are some wastes that are not regulated as a hazardous waste yet are regulated as a **hazardous material-USDOT**. This chapter discusses the general requirements regarding hazardous waste. It focuses on generator requirements for handling waste and does not discuss requirements for treatment, storage, and disposal facilities (TSDF) or transporters requiring permits, licenses, and registrations. This chapter provides

detailed information on handling common hazardous waste streams in Chapter 2.7. It also outlines how 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.

If you have any questions about managing hazardous waste generated at your site after reviewing Chapter 2, contact your environmental consultant, disposal vendor, and/or EGLE District Office, Hazardous Waste Program staff. For questions about transport permits and registration, please see Chapter 4. For questions about permitted and licensed TSDFs, contact EGLE District Office, Hazardous Waste Program staff for hazardous waste facilities and EGLE District Office, Solid Waste Program staff for solid waste facilities.

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). When making a waste determination, generators must evaluate the waste ***at the point of waste generation before any dilution, mixing, or other alteration of the waste occurs*** as specified in Rule 302 of the Part 111 rules. The point of generation for a listed hazardous waste is when it first meets the listing description. The point of generation for a mixture of listed hazardous waste with other waste is when the waste materials are mixed. The point of generation for a characteristic hazardous waste is when the waste first exhibits the hazardous waste characteristic.

Each hazardous waste type, regardless of whether it is a listed 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, also called waste code, that begins with a letter followed by 3 digits. The additional Michigan hazardous waste numbers begin with the 3 digits and end with a letter. Some wastes have several waste numbers that apply because they exhibit multiple hazardous waste characteristics (e.g. a single waste stream can be both toxic for benzene and ignitable because of its low flashpoint and thus tracked using two hazardous waste numbers/codes), and some also have a listed hazardous waste code. It is important to recognize all of the waste codes that apply to ensure proper handling of the waste from cradle to crave.

To determine whether you have a hazardous waste, liquid industrial by-product, or solid waste, view EGLE's recorded Waste Characterization and Generator Status webinar in the Waste Webinar Series available at **Michigan.gov/EGLEEvents**.

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" incorporated into both the state and federal regulations. The intent of the "mixture rule" is to ensure that the solution to pollution is not dilution.

Only hazardous waste meeting a regulatory exclusion, exemptions, or partial exemption in the Part 111 Rules are excluded from having to be managed using the cradle to grave tracking Uniform Hazardous Waste Manifest. Even listed hazardous waste excluded from hazardous waste manifesting remains subject to the land disposal restrictions as provided under Rule 203(7) (see Chapter 2.4.5.c). And if a waste is excluded from Part 111, hazardous waste regulation, it is generally subject to Part 121 if its 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 that support your determination as this is specifically required under Rule 202(5) and Rule 302 and detailed further in Chapter 2.4.2.e, Step 5.

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. Federal listed hazardous waste codes all start with a "F," "K," "P," or "U," while state listed hazardous waste codes all end in an "S" or "U".

- **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 and includes all "F" coded waste. This list includes wastes from equipment like degreasers and wastewater treatment operations used at many manufacturing and service businesses. 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 list. Besides knowing the solvent constituents and their concentration, proper characterization of "F" listed solvent waste also depends on how the solvent was used (see Chapters 2.7.8 and 2.7.9). Some "F" listed hazardous wastes also have an "(H)" designation included in the hazard code column of the table 203. 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 and includes all "K" coded waste. This list includes wastes from industries like chemical manufacturing, petroleum refining, and iron and steel production, among others. 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 had the same "K" list as the federal regulations since November 5, 2013.

- **Discarded commercial chemical products, off-specification chemicals, and their container or spill residues.** The lists of federal discarded commercial chemical products (CCPs), off-specification CCPs, and their container or spill residues are found in Tables 205a and 205b of the Part 111 rules and have waste codes that start with a "P" or "U." The list of state discarded CCPs, off-specification CCPs and their container and spill residues is found in Table 205c and includes waste codes that end with a "U." Discarded CCP, off-specification CCP, and their containers and spill residues meet the listing and are a hazardous waste if the listed CCP functions as their sole active ingredient in the product. Formulations with a sole active ingredient one ingredient that serves a function and may contain materials like water, oil, or other materials that serve as a carrier. An example of a commercial chemical product is technical grade toluene that is used for cleaning. It is a U220 listed 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 listed hazardous waste if it was used for cleaning and then is discarded. Businesses often generate "P" or "U" wastes when disposing of unused chemicals mistakenly contaminated or when accidently producing an off-specification chemical requiring disposal. They also generate "P" or "U" wastes from product spills or disposing of a container or container liner with residues from the "P" or "U" listed hazardous wastes. Pharmaceutical industries commonly generate "P" and "U" listed wastes, especially when they are involved with reverse distribution programs with hospitals, pharmacies, and other medical facilities. CCPs included on the "P" list are all acutely hazardous and trigger full regulation as a hazardous waste if greater than 2.2 pounds are generated in a month. "U" wastes include toxic chemicals and chemicals that display a characteristic like ignitability. Michigan has the same federal "P" and "U lists as the federal regulations. Michigan also has some additional state designated "U" listed waste.

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, ignitable compressed gasses, and oxidizers. Ignitable compressed gasses are those that meet the criteria in 40 CFR 261.21(a)(3), not the criteria referenced in US DOT's regulations. This includes gases that form flammable mixtures in air. Oxidizers are materials that may, generally by yielding oxygen, cause or enhance the combustion of other materials and is defined in 49 CFR 173.127, which is a US DOT regulation. Examples of wastes that are characteristic hazardous wastes due to their ignitability include: mineral spirits, methyl

ethyl ketone, 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. Michigan is in the process of adopting the federal test method for ignitable liquids into the state's hazardous waste rules.

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 – Is unstable at normal atmospheric conditions, reacts violently, and can cause serious harm to human health and the environment. Reactive hazardous wastes include materials that react violently with water, are explosive, and/or undergoes rapid or violent chemical reaction and necessitates special handling requirements. For reactivity, use the same testing as is otherwise required to meet U.S DOT requirements. Examples of wastes that are characteristic hazardous wastes due to their reactivity include lithium hydride, air bag inflators and modules, organic peroxides, cyanides, sulfides, nitroglycerine, trichlorosilane, and explosives. These wastes have a hazardous waste number of D003.

Toxic - Poisonous to humans and other living organisms. A waste becomes regulated as a characteristic toxic hazardous waste 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 in this Chapter 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, lead acid 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 subject to full regulation as a hazardous waste if greater than 2.2 pounds is generated in one month. 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	CAS Number	Material	Extract Concentration from TCLP analysis in milligrams/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

U.S. EPA Hazardous Waste Number	CAS Number	Material	Extract Concentration from TCLP analysis in milligrams/liter
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-chlorocyclo-hexane, 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
D015	8001-35-2	Toxaphene (C10H10C18, 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. The weight of hazardous wastes managed to meet the universal waste standards are not included when determining your site's hazardous waste generator status or category each month (see Chapter 2.4.3). A primary benefit of managing hazardous waste under the universal wastes standards is that it reduces the weight of hazardous waste generated each month. As a result, this often reduces a site's generator category or status and consequently reduces the overall regulatory burden a site must meet when managing common hazardous waste types. For example, a large quantity generator of hazardous waste that manages part of its hazardous waste stream as universal waste may be able to become a small quantity generator if all the site's universal wastes are managed to meet the universal waste standards. This would result in the site being subject to fewer hazardous waste regulations, lower the site's regulatory burden, and lower the waste handler fees. The universal waste standards give facilities the choice of handling the following waste streams as a universal waste or as a fully regulated hazardous waste tracked using the Uniform Hazardous Waste Manifest, and counting the weight of these waste streams toward the site's hazardous waste generator category:

- **Electric lamps,** or what we commonly call light bulbs, including fluorescent, high intensity discharge, light emitting diode (LED), 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 2.7.5).
- **Batteries,** including nickel cadmium dry cell (see Chapter 2.7.4), lithium-ion, and lead acid types (see Chapter 2.7.3 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, cell phones, LED bulbs, and other equipment containing circuit boards commonly found in homes (see Chapter 2.7.13).
- **Antifreeze** (see Chapter 2.7.15).
- **Pharmaceuticals** (drugs or chemical formulations intended to treat, prevent, cure, mitigate, etc. disease in humans and animals), including medications like arsenic trioxide, nicotine containing drugs, coumadin, nitroglycerine, physostigmine, phentermine and other prescription and non-prescription drugs (see Chapter 2.7.17). Michigan is in the process of adopting the federal hazardous waste pharmaceutical rules promulgated under RCRA, Subpart P and, as required under the federal rulemaking, abandoning the universal waste designation. Once the new rules are effective, pharmaceutical waste from healthcare will need to be managed under the new provisions. Pharmaceutical waste from research, development, and manufacture of pharmaceuticals will need to be managed as required based on each site's generator category.

- **Aerosol Cans,** which includes all non-refillable receptacles that contain a gas compressed, liquefied, or dissolved under pressure, which has the sole purpose of expelling a liquid, paste, or powder and is fitted with a self-closing release device and contains a listed or characteristic hazardous waste (see Chapter 2.7.10).

There are two types of universal waste handlers, a small quantity handler and a large quantity handler of universal waste. Do not confuse universal waste handler types with hazardous waste generator categories (e.g., very small quantity, small quantity and large quantity hazardous waste generators).

If a universal waste handler chooses to mix household waste or very small quantity generator hazardous waste of the same type, with universal waste, the commingled waste must all be managed to meet the universal waste regulations. See Table 2.4 below which summarizes the universal waste handling requirements for small and large quantity universal waste handlers. For more detailed information on handling universal waste, see Chapters 2.4.4, 2.4.5, 2.4.7, 2.4.8 and 2.7 and the Universal Waste Guidance. Universal waste transporters and destination facilities requirements are not discussed in this guidebook. For questions about a secondary universal waste handler location or universal waste destination facility requirements, please contact EGLE District Office, Hazardous Waste Program staff.

Learn about Michigan's universal waste regulations by viewing the recorded Universal Waste webinar and the webinar on Michigan's adoption of the federal hazardous waste Generator Improvement Rules and aerosol can universal waste designation available in the **Waste Webinar Series** found at **Michigan.gov/EGLEEvents**.

Table 2.4 Summary of Universal Waste Handling Requirements

Issue	Small Quantity Handler (SQH)	Large Quantity Handler (LQH)[1]
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 site	1 year after generated or received from another site
Accumulation[2]	Accumulate in closed containers compatible with the waste, and properly labeled (Chapter 2.7). Only consumer electronics and batteries, if not leaking, do not require closed containers.	Accumulate in closed containers compatible with the waste, and properly labeled (Chapters 2.7). Only consumer electronics and batteries, if not leaking, do not require closed containers.
Notification Required	No	Yes, use form EQP 5150
Permitted and registered transporters required to be used [3]	No, unless liquid, which must be managed to also meet the liquid industrial by-products requirements. (Chapter 2.4.10)	
Manifests or shipping papers[4]	If liquids, use shipping document or Uniform Manifest (Chapters 2.3.2, 2.4.5.a and 2.4.5.b.)	
Employee Training & Emergency Response	Yes (Chapters 2.4.12 and 6)	
Export/Import	Additional federal notification and reporting requirements (Chapter 2.4.5.d)	
Universal Waste Receiving Facility[5]	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.	

[1] Once the LQH status is reached, the business must keep that designation through the end of that calendar year.

[2] Satellite accumulation standards do not apply to hazardous waste managed to meet the universal waste standards.

[3] Universal wastes that are a liquid would need to be transported by a registered and permitted transporter

to meet the liquid industrial by-products regulations (Chapter 2.3). In addition, some universal waste may be regulated as US 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 US DOT hazardous materials. The amount of mercury varies in the different devices. This material must be packaged, labeled, marked, placarded, and transported with the proper shipping papers according to US DOT requirements. Contact the MSP, Commercial Vehicle Enforcement Division at 517-241-0506, the US DOT at 517-853-5990 or visit **www.phmsa.dot.gov/hazmat** for information about US DOT requirements. Also see Chapter 4.4 for details on transport requirements.

[4] Liquid universal wastes must be shipped to meet the Part 121 liquid industrial by-products transport and shipping requirements. When manifesting universal waste that is liquid, follow the Part 121 requirements for shipping documents.

[5] For questions about acceptable receiving facilities, contact your EGLE District Office, Hazardous Waste Program staff.

2.4.1.d Hazardous Waste Exclusions, Exemptions, and Partial Exemptions

Some waste streams may meet an exclusion, exemption, or partial exclusion in the Part 111 Rules and not be fully regulated as a hazardous waste. The rule provisions are too numerous to include in their entirety in this chapter. However, the following summarizes the most commonly used options. Additional details on common waste types with multiple management options are also included in Chapter 2.7. For additional information, see U.S. EPA's RCRA Orientation Manual and the RCRA Training Module on exclusions and exemptions. Discuss any questions you have on these options with your EGLE District Office, Hazardous Waste Program staff.

Hazardous Waste Recycling

Recycling may occur at the generator's site or off-site. Different regulations apply to companies recycling their own wastes on-site 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. As provided in Rule 303 of the Part 111 Rules, in some cases the waste may not need to be counted when determining your monthly generator category or status.

Companies that offer commercial recycling services are listed in the Recycled Materials Market Directory at **Michigan.gov/RMMD**. Vendors who assist with recycling are encouraged to register and market their services in the directory. EGLE also provides an Environmental Consultant Directory and list of vendors who assist municipalities with household hazardous waste collection that is helpful for finding disposal vendors and marketing disposal services.

Generators need to ensure the recyclers are meeting the regulations that apply to the recycling operation when selecting a recycler. 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 use 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 apply to the recyclable 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 underground storage tank for clean-up purposes under Part 213 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 and discuss your specific recycling questions with your EGLE District Office, Hazardous Waste Program staff. Other resources that may be helpful when reviewing recycling vendor options include:

- Information on selecting transporters or treatment, storage and disposal facilities (TSDFs) as detailed in Chapter 2.4.10,
- Information on the List of Vendors that Assist with Household Hazardous Waste Collection, and
- Information available in the Waste Data System available at **EGLE.State.MI.US/WDSPI** Which provides details on vendor notifications, authorizations, and EGLE MMD inspection findings related to hazardous waste, liquid industrial by-products, solid waste, and scrap tires.

For questions regarding these resources and potential recycling options, contact your EGLE District Office, Hazardous Waste Program staff.

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 and maintained as part of the generator's waste characterization record. There are also speculative accumulation limits that apply to all handlers of 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. Make sure the ultimate destination facility recycles the material you offer. This should help ensure it is a valid management option under the hazardous waste regulations. And be sure to keep inventory records to verify recycled materials are not

speculatively accumulated. See Rule 107(ee) of the Part 111 Rules for the definition of hazardous waste speculative accumulation and Part 121, Section 12112(3) if the material is subject to liquid industrial by-products regulations.

On January 13, 2015, the federal "Definition of Solid Waste" regulations were revised to establish new standards for "hazardous secondary materials" that encourage the reclamation of certain materials without increasing risks to human health and the environment. Michigan adopted the federal "Definition of Solid Waste" changes into the Part 111 Rules on April 5, 2017. Michigan facilities can reclaim certain "hazardous secondary materials" if the recycling meets the legitimacy criteria found under Rule 232 of the Part 111 Rules and the conditional exclusions provided under Rule 204(1)(aa), (bb), (cc), and (dd), of the Part 111 Rules. To learn more about hazardous secondary material recycling requirements, see the Hazardous Secondary Material Guidance and contact your EGLE District Office, hazardous waste program staff with questions. There have been federal judicial and rulemaking changes related to hazardous secondary materials since the initial federal rulemaking that are important to consider when considering use of this exclusion.

Empty Containers

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

- The container or the inner lining that held *nonacute 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*** (not or) 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.

- 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 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 POTW who is authorized by EGLE under Part 31 discharge permit and there is no accumulation or storage prior to the discharge to the sanitary sewer).

- 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 Sanitary or Combined Sewer Systems

Wastewater that contains hazardous waste and is discharged to a sanitary or combined sanitary sewer system to a publicly owned treatment works (POTW) authorized under a Part 31 discharge permit, a discharge permit by rule (see under Part 31, Part 22 Rules, Rule 2211 and Chapter 3.2.4.a), or an order issued pursuant to Part 31, is exempt from the hazardous waste regulations **at the point of discharge into the sanitary or combined sewer system *IF* the discharge is approved by the receiving POTW** (see Chapter 3.2.1). Any hazardous waste treatment or storage prior to that discharge may be subject to the hazardous waste regulations, including the land disposal restrictions (see Chapter 2.4.5.c). This exemption does not apply to any hazardous waste that is transported by truck or rail to a POTW. This exemption also does not apply to the discharge of any wastewater to a storm sewer which is strictly prohibited by law.

In November 2016, the U.S. EPA issued a memorandum and Pretreatment Factsheet on Hazardous Waste Reporting. The memorandum highlights that generators of discarded materials, when discharging a substance to a POTW that would otherwise be a hazardous waste, must submit an initial notice of the discharge activity to the receiving POTW; the EPA Regional Waste Management Director; and EGLE's Materials Management Division under 40 CFR 403.12 (p) and (j). The notification is a one-time written notice required for each waste stream being disposed to a POTW. Notices submitted to meet the Clean Water Act pretreatment requirements under 40 CFR 403.12 (p) and (j) should be submitted via e-mail to EGLE-MMD, Permitting and Program Support Unit at EGLE-MMD-HWS@Michigan.gov. For more details regarding the required report contact your POTW and see Chapter 3.2.1a. Some materials are prohibited from being discharged to the POTW for disposal under federal, state, and local ordinance. As of August 22, 2018, under new federal rules hazardous waste pharmaceuticals are prohibited from being disposed to a POTW. See Chapter 3 for additional prohibitions found under the Clean Water Act.

An exemption from the mixture rule exists if very small amounts, or de minimis amounts, of listed hazardous waste are discharged to a POTW 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 minimis exemption including meeting wastewater discharge requirements. Contact your EGLE District Office, Hazardous Waste Program staff with questions about de minimis losses.

If hazardous waste is discharged to a POTW for disposal, keep a copy of the permit application or the submission to the receiving facility with their approval and records of your hazardous waste discharges for at least three years. If written authorization is not provided by the POTW, document the authorization provided for each non-domestic waste stream that is sewered for disposal. Note details of who provided approval, the waste stream description, the volume approved and the duration of the approval. See Chapter 3 for more information. Note too, if a site 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 3.4). Discuss this exemption with EGLE District Office, Hazardous Waste Program staff, WRD, Industrial Pretreatment Program staff, and your local POTW.

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.

To learn about additional exclusions, exemptions, and partial exemptions, view EGLE's recorded Waste Characterization and Generator Status webinar and Universal Waste webinar in the **Waste Webinar Series** available at **Michigan.gov/EGLEEvents.**

2.4.2 DETERMINING IF YOU GENERATE HAZARDOUS WASTE

All facilities must determine if the waste they generate meets is a hazardous waste or not. This is necessary when a waste is first generated and must be re-evaluated if changes are made that may change the nature or composition of the waste. The waste must be re-evaluated if the materials used in the process change, the process generating the waste is changed, or operational changes are made that may change the composition and nature of the waste (e.g. cross contamination from material overspray or even a change in storage temperatures that can result in a change in the nature or composition of the waste).

The regulations do not identify a specific timeframe (like annually) to re-evaluate the waste determination. As a precaution, to ensure no changes have been overlooked, periodically waste determinations should be re-evaluated. Check with your disposal vendor to see if they have timeline requirements. They generally have a retesting schedule.

Always be sure to keep any records obtained during waste determinations (i.e., test analysis results, safety data sheet (SDS), or other documentation such as product information from a supplier or manufacturer) for at least three years from the time the waste 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's guidance titled Waste Analysis at Facilities that Generate, Treat, Store, and Dispose of Hazardous Waste for more information.

2.4.2.a Who Can Do Waste Determinations for a Business?

A business, non-profit, municipal authority, hospital, church, etc. may:

- Hire a consultant or use a disposal company's waste characterization services, but be aware that the waste generator remains responsible for meeting the waste regulations,
- Characterize the waste themselves, or
- Use a combination of in-house expertise and the expertise of a consultant and/or disposal vendor to characterize their waste and create a waste determination record.

Merely having safety data sheets (SDS) for products used or waste profiles from the receiving facility is not adequate for documenting a waste determination. To help ensure each waste determination is clearly documented, consider using the optional waste characterization form for documenting your conclusions. Keep it with the additional records like SDS and laboratory results relied upon for reaching the waste determination conclusion. This will help during any inspection and if new staff become responsible for environmental compliance.

2.4.2.b Information Used to Make the Waste Determination

Waste can be characterized using the generator's knowledge or by testing a representative sample.

Process knowledge may be used in making a listed or characteristic waste determination. Information used for making a listed waste determination may include the waste origin, composition, the process producing the waste, feedstock, and other reliable and relevant information. Information on the SDS or supplier and manufacturer literature may be useful when you have unused product needing disposal. Knowledge that may be used in making a determination that the waste exhibits one or more characteristics of a hazardous waste includes process knowledge; feedstocks and other process inputs; knowledge of products, by-products, and intermediates produced by the manufacturing process; chemical or physical characterization of the wastes; information on the chemical and physical properties of the chemicals used or produced by the process or otherwise contained in the waste; or other reliable and relevant information about the properties of the waste or its constituents. An SDS often provides information about the flashpoint, pH, and if a discarded product is a hazardous waste or contains hazardous constituents. Note, however, that an SDS is not completely reliable for determining if a used material is a hazardous waste because it does not include information about contaminants that might be in the waste from use. Since the SDS is designed to meet occupational safety requirements, it also may not include all hazardous constituents requiring evaluation under the environmental regulations. A waste stream may be presumed (by knowledge) to contain certain

constituents above regulatory thresholds for compliance purposes; however, testing may be required to adequately document a hazardous or non-hazardous waste determination.

Testing a representative sample of the waste can also be used to characterize a waste. A test method other than one set forth in the hazardous waste regulations or an equivalent method approved by EGLE's Director may be used as part of the generator's knowledge to determine if a waste exhibits a hazardous characteristic. Testing is definitive in determining whether the waste is characteristically hazardous if the test method used is specifically identified in the hazardous waste regulations or is approved by EGLE's Director, assuming a representative sample of the waste was evaluated.

2.4.2.c 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 which is discussed in further detail below. 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 EGLE's, Remediation and Redevelopment Division staff.

To find an EGLE certified laboratory performing chemistry, microbial, or radiological analyses, go to **Michigan.gov/EGLELab** 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 US DOT labeling and shipping requirements. US DOT questions can be directed to Michigan State Police, Commercial Vehicle Enforcement Division at 517-284-3250 or the US 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.d 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 U.S. EPA's publication "SW-846" at **epa.gov/hw-sw846**.

The paint filter test is U.S. EPA Method 9095B 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 liquid industrial by-products.

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 or reach surface water. The testing procedure 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. This list is also found in Table 2.3 above. 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 that 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, refer to U.S. EPA's TCLP Questions for use of totals analysis. For additional U.S. EPA information on use of totals analysis for waste characterization, go to epa.**gov/rcraonline** and search for "Total Waste Analysis."

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.e Steps When Doing Waste Determinations

As described in Chapter 2.1, sites generating hazardous waste need to conduct a waste survey to identify all of the waste streams generated across the entire site. You need to look at all activities occurring at the site. Hazardous waste is generated in office buildings, as well as commercial, industrial, agricultural activities, etc. Hazardous waste (and liquid industrial by-products, see Chapter 2.3) can also be incidentally generated from building expansions, renovations and/or property maintenance activities. It all needs to be considered to determine the regulations that apply when handling waste. Often new materials get overlooked and can have a significant impact on the handling requirements and disposal costs. As such, it is important to put procedures in place that provide for evaluating new products before purchase and use. This will help reduce a site's regulatory burden and reduce cost as it will help with recognizing the site's cost implications associated with use of the new materials.

The following list identifies some commonly overlooked hazardous waste streams. The reason(s) why the waste stream may be hazardous is noted in parenthesis:

- Spent fluorescent tubes, LED, or other lighting fixtures (toxic for mercury), see Chapter 2.7.5.
- Solar panels (toxic for metals), see Chapter 2.7.20.
- Undeployed airbag modules or inflators (reactive)
- 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), see Chapter 2.7.8.
- Spent activated carbon media, included in some air filters and other equipment (contains "F" listed solvents).
- Used solvents with low flashpoint (toxic, ignitability) and used solvents with high flashpoints (toxic for metals).
- 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).

Identify if the material can be used "as is" without any processing, filtering, etc. and can be used as a product and not be disposed of as a waste. Use business connections to find another company to use the product or check the Michigan Materials Marketplace at

Michigan.MaterialsMarketplace.org to find use options. The Michigan Materials Marketplace is designed to help businesses find commercial use options for unwanted materials that may have continued use options. However, make sure any use opportunity you find aligns with the hazardous waste regulations. Confirm it is a legitimate option not subject to hazardous waste regulation as discussed in Chapter 2.4.1.d and be sure to discuss your use option with EGLE District Office, Hazardous Waste Program staff, to confirm your waste determination.

Consider the information shared in this chapter and follow the steps below when making a waste determination.

STEP 1

Is the Waste a Listed Hazardous Waste?

As discussed in Chapter 2.4.1.a, to be considered listed waste, either the chemical or the process used to generate the waste is specifically listed in the Part 111 rules.

- **F Codes** are found in Table 203a and include hazardous waste streams generated by many different types of commercial and industrial operations like spent solvents used in degreasing and metal plating activities.
- **K Codes** are found in Table 204a and include specific types of wastes generated from industries like petroleum or chemical refining, wood treatment operations, and pesticide manufacture.
- **P and U Codes** are found in Tables 205a-c and include unused commercial chemical products (CCPs) (chemical grade products), off-specification CCPs, and CCP container and spill residues for chemicals like formaldehyde, parathion, benzene, DDT, xylene, and certain pharmaceuticals like arsenic trioxide, nicotine, and warfarin.
- **S Codes** are found in Table 202 and include wastes that contain dioxins and furans.

You also need to keep in mind that all codes with a "P" in their hazardous waste number are considered acutely toxic hazardous wastes. All codes with an "S" in their hazardous waste number are severely toxic. All codes with an "(H)" in the "Hazard Code" column to the right of the waste description are also acutely toxic hazardous wastes. This information is important when evaluating the amount of hazardous waste generated monthly and making a generator category determination. To determine if you have a listed hazardous waste, you have to look at all of the listings and see if any apply. Check the rules to determine whether you have a hazardous waste specifically listed in the rules and after making a listed hazardous waste determination, proceed to step 2.

STEP 2

Does the Waste Exhibit a Characteristic that Makes it a Hazardous Waste?

After reviewing the waste for being listed in step 1, review whether it exhibits a characteristic or characteristics that make it a hazardous waste. This will ensure you recognize all the hazards associated with the waste and have it labeled to meet the various labeling requirements that may apply. A waste can be subject to hazardous waste regulation as a characteristic hazardous waste if it is determined to be ignitable, toxic, corrosive, reactive, or severely toxic as defined under Rule 212 and discussed in Chapter 2.4.1.b above. Make sure you have adequate records to use knowledge to make your determination and that any testing is performed using the test procedure(s) specified in the rules and discussed in Chapter 2.4.2.b and 2.4.2.c, above.

After determining if the waste is a listed hazardous waste and whether it exhibits a characteristic or characteristics that make it a hazardous waste, proceed to step 3.

STEP 3

Is the Waste Specifically Excluded, Exempted, or Partially Exempted from the Hazardous Waste Regulations?

The hazardous waste regulations include many exclusions, exemptions, and partial exemptions. Some are designed to prevent regulatory overlap, some to encourage waste minimization, others to promote safe reclamation and recycling. They were also designed to provide regulatory relief for generators who focus on sustainable options, who generate less waste and/or less toxic materials.

Review if there is an exclusion, exemption, or partial exemption that applies to the waste stream. These are discussed in Chapter 2.4.1.c and 2.4.1.d. To see a complete list of the exclusions from hazardous waste regulation, see the Part 111 Rules. Also keep in mind that the exclusions and exemptions are specific. They rely on waste generators, handlers, and destination facilities all meeting all of the exemption/exclusion conditions. If all the conditions are not met, it leaves all parties liable for mismanagement. If the waste is a listed and/or characteristically hazardous waste, skip forward to Step 5. If the waste is neither a listed nor characteristic hazardous waste or is excluded, exempt, or partially exempt from hazardous waste regulation, continue to step 4.

STEP 4

What Other Waste Regulations Apply?

If the waste is not a listed hazardous waste, does not exhibit a characteristic that makes it a hazardous waste, or does but is exempted from hazardous waste regulation, does the waste contain free liquids? If it does, it generally is subject to regulation as a liquid industrial by-product under the Michigan's regulations. The paint filter test or test method 9095 found in U.S. EPA's publication SW-846 is used to

determine if a waste is a liquid industrial by-product. The test evaluates the presence of free liquids in a representative sample. When testing, a predetermined amount of the waste 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 is considered to contain free liquids and is subject to regulation as a liquid industrial by-product.

Like the hazardous waste regulations, there are exclusions intended to prevent regulatory overlap and to encourage recycling and safe management of liquid industrial by-products. The liquid industrial by-products exclusions are found in sections 12101(n) and 12102a of the liquid industrial by-products statute. Materials like fats, oil and grease, septage, biosolids, medical waste, and sanitary sewer clean-out waste may be regulated under other regulations designed to protect public health and the environment. Liquid waste exempted or partially exempted from the hazardous waste regulations must be managed to meet the liquid industrial by-products regulations unless it is specifically excluded from being subject to the liquid industrial by-products regulations. See more about liquid industrial by-products and exemptions from those standards in Chapter 2.3, above.

Generally, only domestic wastewaters from cooking, laundry and bathing can be discharged to an on-site septic system. To discharge other, non-domestic wastewaters (e.g. any commercial or industrial wastewaters) to an on-site system, a groundwater discharge permit is needed unless the specific discharge is permitted by rule under the water resource protection regulations. Contact EGLE's Groundwater Permit Program staff for more details regarding on-site disposal of non-domestic wastewaters.

Is the waste a non-hazardous solid waste, scrap tire, or a special waste like asbestos, polychlorinated biphenyl (PCB) waste, medical waste, or a radioactive material? If the waste is not a hazardous waste or a liquid industrial by-product, it is generally a solid waste. However, there are other environmental regulations to consider. Handling of asbestos and PCB waste is subject to additional regulations under the federal National Emission Standards for Hazardous Air Pollutants and the federal Toxic Substance Control Act. There are also solid waste exclusions that provide for safe use of some materials in specific circumstances. See Chapter 1 for additional asbestos details, Chapter 4 for additional PCB details and Chapter 10 for additional details on radioactive materials.

After determining if the waste is a liquid industrial by-product, solid waste, or subject to other waste regulations proceed to step 5.

STEP 5

Create and Maintain a Characterization Record for at Least Three Years form the Date the Waste was Last Shipped Off-site.

When documenting your characterization determination, use a form that includes the following basic information and follows the steps and questions used when making a waste characterization determination. It will make it easier to document your conclusions and to discuss your characterization determination with your recycling/disposal vendor and EGLE inspection staff:

- Name of person completing form
- Date form was completed
- Waste description
- Waste type
- Narrative description of the waste
- Waste source
- Waste codes
- Waste sample details {sample date(s), sample location(s), sample collection procedure(s), lab analysis method(s), etc.}
- Product name(s) for Safety Data Sheet(s) (SDSs) considered
- Subpart AA, BB or CC applicability determination
- Land disposal restriction underlying hazardous constituents, if applicable

Include copies of all supporting sample reports, SDS(s), waste profiles, and other reference materials relied upon to reach your characterization determination. After creating a waste characterization record for each waste stream, proceed to step 6.

STEP 6

Recharacterize if the Process, Materials or Material Handling Causes a Change in the Waste.

If the materials used at the site change, the processes that produce the waste changes, or the nature of the waste changes due to storage and/or handling conditions, the waste must be re-evaluated. This is critical to consider and requires planning and forethought and often results in compliances issues. Do not overlook this step when establishing practices and procedures!

2.4.2.f 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 U.S. EPA's 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 U.S. EPA's 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.

2.4.3 HAZARDOUS WASTE GENERATOR STATUS & REQUIREMENTS SUMMARY CHART

Under the regulations, businesses must evaluate their generator category or status on a continual basis. A site's hazardous waste generator category, as specified in Rule 303 of the Part 111 Rules, is based on:

1. The total weight of the hazardous waste generated each calendar month at the site and
2. The weight of hazardous waste accumulated at the site at any one time.

It is of utmost importance for a generator of hazardous waste to be able to provide information that verifies the site's generator category because this information is required to determine the handling and disposal requirements that apply to any waste generated. The more hazardous waste generated in a month, the more regulations that apply. As a site generates more hazardous waste, it is subject to more regulatory requirements to ensure public health and the environment are protected. To minimize the regulations that apply, it helps to initiate sustainability measures that minimize the volume and toxicity of the waste generated.

Facilities that periodically generate large volumes of hazardous waste are recommended to either meet the more onerous regulatory requirements to ensure compliance is maintained or meet the episodic generator requirements. Generators are allowed one planned or unplanned episodic event annually and cannot generate more than 13,200 pounds (6,000 kilograms.) of nonacute hazardous waste during an event. A generator may petition for a second event; however, the

second episodic event cannot be the same as the first episodic event (if the first event in the calendar year was planned, the second must be unplanned and vice versa). (Chapter 2.4.13).

Table 2.5 provides a summary of the different generator categories and Table 2.6 provides a summary of the hazardous waste generator requirements for the different generator categories.

Generators must notify EGLE of their generator category or status and other waste handling activities when applying for a **Site Identification Number**, also known as Site ID or EPA Number, EPA Handler ID, 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 category they operated at during the previous calendar year. The fees increase as the business generates more hazardous waste. For each of the generator categories, there are accumulation time limits and volume limits. If the generator does not exceed the specified limits, a hazardous waste storage operating license is not required.

When calculating a site's hazardous waste generator category, use the results from the sitewide waste survey (Chapter 2.1) and the waste determinations made as a result of the survey (see Chapter 2.4.2). **DO COUNT** the weight of VSQG hazardous waste. **DO NOT COUNT** the weight of the following waste streams when determining the monthly generator category:

- Waste that is not a listed or characteristic hazardous waste.
- Hazardous waste that is being managed as a universal waste (see Chapters 2.4.1.c and 2.7.d, 2.7.e, and 2.4.m, 2.7.o, and 2.7.q).
- Hazardous secondary materials managed to meet the legitimacy criteria for reclaimed recycled materials and the conditional exclusion provisions for hazardous secondary materials (see Chapter 2.4.1.d)
- Laundered and reused shop towels or textiles and disposable solvent wipes managed to meet the conditional hazardous waste exclusions for these materials (see Chapter 2.7.8).
- Scrap metal being recycled (see Chapter 2.7.16).
- Some materials being recycled such as used oil and filters (see Chapter 2.7.1, and 2.7.2) and lead acid batteries (see Chapter 2.7.3).
- The remaining residue in "empty containers" (see Chapter 2.4.1.d).
- See Rule 206, Rule 503, and Part 8 of the Part 111 Rules for additional wastes that are recycled, reclaimed or treated on-site which are not counted.
- Materials that are being reused "as is" as an approved product replacement.
- Liquid Industrial By-Products.

Please note that exempted VSQG hazardous waste must always be counted.

Generators who generate acute or severely toxic hazardous waste and nonacute hazardous waste in the same calendar month must determine the generator category by counting separately the total amount of acute hazardous waste, severely toxic hazardous waste, and nonacute hazardous waste generated in the calendar month.

Keep in mind that different activities at the site may change the site's generator category. For example, when a site 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 category unless specified otherwise under Rule 303 of the Part 111 Rules. See the Emptying Tanks or Containers guidance for more information.

A simple written log like the following can be kept verifying how much hazardous waste is generated each month. This provides documentation to support the generator category determination at the time of inspection.

Waste Paint Solvent

Date waste added:	How much added:	By:	Monthly running total
1/3/06	1 gal	George G.	1 gallon
1/15/06	9 gal	Pat M.	10 gallons
2/9/06	2 gal	Sammy Jo	2 gallons

Again, a site can lower its hazardous waste generator category and the regulatory requirements it must meet if waste minimization and pollution prevention practices are implemented (see Chapter 2.1). Moreover, when signing a Uniform Hazardous Waste Manifest (see Chapter 2.4.5), the person signing the manifest must certify that:

- the site has taken efforts to reduce the amount and toxicity of the waste generated at the site and
- they are personally familiar with the site-specific pollution prevention efforts.

If a disposal company or transporter is preparing a site's shipments, be sure they are trained in your site-specific pollution prevention efforts and able to certify those details when offering your waste for shipment.

Since the waste management requirements are based on the total weight of hazardous waste generated in a calendar month, you may need to convert the amount of waste generated in gallons to pounds or kilograms to determine the site's generator category. 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 unitless 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.

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.

TABLE 2.5 Summary of the Hazardous Waste Generator Categories

Generator Category	Maximum amount of nonacute hazardous waste generated per month	Approximate maximum volume of nonacute hazardous waste generated per month	Maximum amount of acute or severely toxic hazardous waste generated per month	Maximum amount of contaminated soil, water or other debris from clean-up of acute or severely toxic hazardous waste generated per month
VSQGs	≤ 100 kilograms (220 lbs.)	≤ half a 55-gallon drum or ≤ 25 gallons	≤ 1 kilogram (2.2 lbs.)	≤ 100 kilograms
SQGs	> 100 kilograms (220 lbs.) but < 1,000 kilograms (2,200 lbs.)	> half a 55-gallon drum and < five 55-gallon drums or >25 gallons and < 250 gallons	≤ 1 kilogram (2.2 lbs.)	≤ 100 kilograms (220 lbs.)
LQGs	≥ 1,000 kilograms (2,200 lbs.)	≥ five 55-gallon drums or ≥ 250 gallons	> 1 kilogram (2.2 lbs.)	> 100 kilograms (220 lbs.)

Generator category is determined using the limits in the Hazardous Waste Generator Category table above from Rule 303 of the Part 111 Rules. If acute or severely toxic hazardous waste and nonacute hazardous waste are generated in the same calendar month, count separately the total amount of nonacute hazardous waste; the total amount of acute hazardous waste; the total amount of severely toxic hazardous waste; and contaminated soil, water, or other debris from clean-up of acute or severely toxic hazardous waste generated in the calendar month, and compare the amounts to the generator categories found in the table above. Make sure all hazardous waste generated across the site has been accurately characterized and included when determining generator status, including any waste treated on-site.

TABLE 2.6 Summary of the Hazardous Waste Generator Accumulation Requirements

Requirement:	VSQGs	SQGs	LQGs
Acceptable 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, licensed hazardous waste facility, or LQG under the control of the same person as the VSQG. Also, universal waste handler or 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.	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.
Maximum time period before waste must be shipped off-site	No time limit if accumulation of 1,000 kilograms (2,200 lbs.) of nonacute, 1 kilogram (2.2 lbs.) of acute or severely toxic, and 100 kilograms (220 lbs.) of contaminated soil, water, or other debris from clean-up of acute or severely toxic is never exceeded.	180 days, unless shipping over 200 miles, then 270 days. Storage beyond this time period requires a hazardous waste license unless an extension meeting Rule 306(3) or (4) has been granted by EGLE under Part 111 Rules.	90 days. Storage beyond this time period requires a hazardous waste license. unless an extension meeting Rule 307(1)(a) has been granted by EGLE under the Part 111 Rules.
Maximum amount of hazardous waste that can be *accumulated* on-site	1,000 kilograms (2,200 lbs.) of nonacute, 1 kilogram (2.2 lbs.) of acute or severely toxic, and 100 kilograms (220 lbs.) of contaminated soil, water or other debris from the clean-up of acute or severely toxic. If >1,000 kilograms (2,200 lbs.) nonacute, subject to SQG requirements unless the site meets Rule 316 episodic generator requirements under the Part 111 Rules. If >1 kilogram (2.2 lbs.) of acute or severely toxic or if exceed 100 kilograms (220 lbs.) of contaminated soil, water or other debris from clean-up of acute or severely toxic hazardous waste generated per month, subject to LQG requirements, unless the site meets the Rule 316 episodic generator requirements under the Part 111 Rules.	6,000 kilograms (13,200 lbs.) of nonacute, 1 kilogram (2.2 lbs.) of acute or severely toxic, and 100 kilograms (220 lbs.) of contaminated soil, water, or other debris from the clean-up of acute or severely toxic. If >6,000 kilograms (13,200 lbs.) nonacute, requires a hazardous waste license for storage. If >1 kilogram (2.2 lbs.) acute or severely toxic, or 100 kilograms (220 lbs.) for contaminated soil, water, or other media from the clean-up of acute or severely toxic, subject to LQG requirements, unless the site meets Rule 316 episodic generator requirements under Part 111 Rules.	No maximum amount.

Requirement:	VSQGs	SQGs	LQGs
On-site treatment, disposal, and waste analysis plan	VSQGs can treat on-site and are not subject to Rule 503 of the Part 111 Rules. Facilities with waste discharges to a municipal sanitary sewer system authorized under the Clean Water Act (CWA) by the receiving facility may require records of disposal and need wastewater operator certification depending on process.	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. Facilities with waste discharges to a municipal sanitary sewer system authorized under the CWA by the receiving facility may require records of disposal and need wastewater operator certification depending on process. SQGs doing on-site treatment must have a Waste Analysis Plan and keep records to meet Land Disposal Restrictions.	On-site treatment allowed without a hazardous waste license if conditions in Rule 503 or Rule 206 of the Part 111 Rules are met. Facilities with waste discharges to a municipal sanitary sewer system authorized under CWA by the receiving facility may require records of disposal and need wastewater operator certification depending on process. LQGs doing on-site treatment must have a Waste Analysis Plan and keep records to meet Land Disposal Restrictions.
Notification and Site/EPA identification number	No, unless the site has an episodic generating event and uses Rule 316 of the Part 111 Rules to maintain the VSQG category.	Yes, and starting 2021, renotification is required every four years.	Yes, and renotification is required during Biennial Reporting every even numbered year.
Accumulation area inspections	No, but recommend meet SQG requirements. May be subject to other regulations depending on waste.	Yes, weekly container and tank inspections required along with written inspection log.	Yes, weekly container and daily tank inspections required along with written inspection logs.
Labeling requirements	Yes	Yes	Yes
Secondary containment requirements	No	Yes, if ever accumulate 1,000 kilograms (2,200 lbs.) or more at any time.	Yes
Air emissions control for volatile organic compounds hazardous wastes	No	No	Yes

Requirement:	VSQGs	SQGs	LQGs
Uniform Hazardous Waste Manifest	No - Shipping document is required for VSQG liquids. This includes VSQG liquids shipped to controlling LQG for consolidation. Manifests are optional. A manifest is required for VSQGs liquids managed as an episodic generating event under Rule 316 of the Part 111 Rules. US Department of Transportation (US DOT) shipping document requirements must also be met if shipping a US DOT hazardous material.	Yes – Manifest required, unless SQG meets tolling agreement. US DOT shipping document requirements must also be met if offering a US DOT hazardous material.	Yes – Manifest required. US DOT shipping document requirements must also be met if offering a US DOT hazardous material.
Land disposal restriction records	No	Yes	Yes
Contingency plan	No - Meeting SQG requirements is recommended. US DOT security plan may be required. Refer to 49 CFR 172.800 for specific security plan requirements.	Yes - Written plan required and emergency arrangements with local responders must be documented. Plan quick reference guide recommended. Basic plan and emergency posting by phones and/or hazardous waste handling areas is required. US DOT Security Plan may be required. Refer to 49 CFR 172.800 for specific security plan requirements.	Yes - Written plan required and emergency arrangements with local responders must be documented. Plan requires a quick reference guide. US DOT Security Plan may be required. Refer to 49 CFR 172.800 for specific security plan requirements.
Emergency procedures	No - Meeting SQG requirements is recommended.	Yes	Yes
Personnel training	No – Meeting SQG requirements is recommended. US DOT training required when shipping hazardous waste. Michigan Occupational Safety and Health Administration (MIOSHA) training may also be required.	Yes – Basic training required and must be documented. US DOT training required when shipping hazardous waste. MIOSHA training may also be required.	Yes – Extensive training required annually, and training must be documented. US DOT training required when shipping hazardous waste. MIOSHA training may also be required.
Requirements to use licensed and registered transporter	Self-haul option or licensed and registered transporter of liquid industrial by-products.	Licensed and registered hazardous waste transporter.	Licensed and registered hazardous waste transporter.

Requirement:	VSQGs	SQGs	LQGs
Waste minimization requirements	No - Meeting SQG requirements recommended.	Yes	Yes
Annual handler fees	No, unless site has an episodic event subject to Rule 316 of the Part 111 Rules.	$100 user charge, unless experience an episodic event subject to Rule 316 of the Part 111 Rules, then $400.	$400 user charge when generates < 900,000 kilograms in calendar year; OR $1,000 user charge when generates ≥ 900,000 kilograms in the calendar year
Hazardous waste/biennial report	No	No.	Yes, LQGs consolidating VSQG waste must also report consolidation activities.
Used Oil Biennial Report See summary	Not required for VSQGs. 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.	Not required for SQGs. 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.	Not required for LQGs. 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.
Annual import/export report	Yes, for hazardous and universal wastes.	Yes, for hazardous and universal wastes.	Yes, for hazardous and universal wastes.
US DOT transport requirements	Yes, when required by US DOT.	Yes	Yes
Closure of accumulation areas	Yes – Meet Part 201 of Act 451 cleanup requirements.	Yes – Must remove all hazardous waste from tanks, discharge control equipment, and discharge confinement structures and manage it as a hazardous waste. Meet cleanup standard authorized under Part 111 of Act 451.	Yes – Notification required 30 days prior to closing and 90 days after closing to certify that closure performance standards that were achieved. Meet cleanup standards authorized under Part 111 of Act 451.

[1] 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 engages in regulated waste activities. Some people refer to this as a Site ID, EPA ID, EPA Handler Number, or EPA Number. A Site ID is required of:

- Hazardous waste large quantity and small quantity generators.
- Hazardous waste and liquid industrial by-products transporters.
- Liquid industrial by-products designated facilities.
- Liquid industrial by-products generators utilizing the e-Manifest system.
- 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/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). If you don't know the Site ID, select the "Advanced Search" option, and enter only the street name and city, then select "Run Query." After the list is created, check the square box next to "Address" under display options. Then sort the list by clicking on the word "Address" in the list header. This will present the data sorted numerically by street number on that particular street. By searching on an address, you avoid getting no matches when the site 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 EGLE District Office, Hazardous Waste Program staff for help.

See the information posted on the Waste Data System (WDS) web page about applying for a Site ID Number. If an existing site needs to update information on file with EGLE, complete the Site ID Form (EQP 5150) and select "Submitting a Subsequent Notification" in Section 1, "Reason for Submittal." Facilities needing a new Site ID Number also must file the Michigan Site ID Form (EQP 5150), but they select the "Obtaining an Initial Notification" in Section I, "Reason for Submittal." For Michigan facilities, this form replaces U.S. EPA's Notification of Regulated Waste Activity Form 8700-12, U.S. EPA's Hazardous Waste Permit Part A Form 8700-23, and U.S. EPA's Notification Identification and Certification Form 8700-13A/B. The Site ID Form is also used in conjunction with the Michigan Hazardous Waste Treatment, Storage and Disposal Facilities Operating License Application Form (EQP5111). The Site ID Form (EQP 5150) is no longer used to notify of PCB waste management activities. For information about notification for PCB activities, please see Chapter 4, Section 4.5. When a Site ID 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.

Use only the current version of the Michigan Site ID Form (EQP 5150). 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-products management, contact your EGLE District Office, Hazardous Waste Program staff.

When submitting the form, make sure your form is filled out completely and correctly. Sign the certification section e-mail the form to EGLE-MMD-Site-ID-Reporting@Michigan.gov. If paying on-line, e-mail 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 MI0 or have a Michigan identification number which has a prefix MIG, MIH, or MIP.

TIP: Make sure to completely fill out the EQP 5150 form. Some commonly missed fields are the tax number, 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 **naics.com**.

As of August 3, 2020, small quantity generators of hazardous waste are required to re-notify of their hazardous waste activities every four years using the Site ID Form (EQP 5150). The purpose of the re-notification requirement is to improve the small quantity generator data and to maintain more accurate data into the future for outreach, compliance assistance, and oversight activities. The first re-notification was due September 1, 2021, and each re-notification is required every four years thereafter (e.g., September 1, 2025, September 1, 2029, etc.).

A site may also need to update notification information previously submitted if there are changes in the site's regulated waste activities. Be sure to check all the boxes that apply to the site's regulated waste activities and answer all sections on pages 1-7. Examples when a new or updated notification is required for changes in operations 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 the site a small quantity generator or large quantity generator. Check the appropriate box in Section 12, Item 1 for hazardous waste generator activities and check the box for liquid industrial by-product generator in Section 13. In Section 12, also list all of the waste codes for the federal hazardous wastes handled at the site in the order the waste codes are presented in the regulations (e.g. D001, D002, F007, U112). If the site is operating as a large quantity hazardous waste generator and accepts hazardous waste from one or more very small quantity generators that they own for consolidation, also:
    - Select "Y" in Section12, Item 5 designating that the site receives hazardous waste from off-site,

  - Select "Y" in Section 16 indicating the LQG is consolidating VSQG waste from sites that are owned by the LQG, and
  - Complete the addendum for the consolidation activities on page 10.

- A company moves to a new location and will be generating hazardous waste in amounts making the site a small quantity generator or large quantity generator at the new site. Search the Waste Data System to see if the new location has already been assigned a Site ID. If a Site ID exists for the new location, complete the form, and include the new location's existing Site ID on the form. The Site ID number is assigned to the property remains with the property.
- A company no longer generates hazardous waste at a site that previously required a Site ID Number for the hazardous waste activity, but the company is still in operation at that site. Check the box in Section 1 that states the site is still in business and the regulated activity is (generating hazardous waste) is no longer occurring.
- 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 13. for the used oil collection center or aggregation point that accepts DIY used oil and the liquid industrial by-product generator activities.
- A company handles total accumulated amount of 11,000 pounds or more of all universal wastes. Check appropriate boxes in Section 13 for the types of universal waste handled at that location.
- A facility accepts liquid industrial by-product from other sites. Check the box in Section 13. for liquid industrial by-product designated facility activities.
- A facility accepts hazardous waste from very small quantity generators of hazardous waste that includes both liquids and solids exempted from full hazardous waste regulation. Check the box in Section 13 for liquid industrial by-product designated facility activities.

A facility may have an identification number issued under a different program, such as a medical waste registration number issued by EGLE's Medical Waste Regulatory Program or a federal identification number for PCBs assigned by U.S. EPA's TSCA Program. The TSCA number may be used on a Uniform Hazardous Waste Manifest but **ONLY** when shipping waste specifically regulated under the TSCA program. Shipments of regulated hazardous waste require the use of the Site ID Number issued by EGLE's Hazardous Waste Program, or previously issued by U.S. EPA for hazardous waste activity.

2.4.5 UNIFORM HAZARDOUS WASTE MANIFESTS AND SHIPPING RECORDS

The following summarizes the Uniform Hazardous 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-USDOT** and Chapter 4.5 for information on shipping waste containing PCBs. EGLE has a generator tracking log to help with tracking waste shipments and recordkeeping. Customize this form to make waste tracking easier.

2.4.5.a Uniform Hazardous Waste Manifests and Liquid Industrial By-Products 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.), and to understand what information that must be recorded on what form and available for review upon request during an inspection.

As of July 1, 2018, U.S. EPA requires the use of the e-Manifesting system for shipments of hazardous waste, which is found on the RCRAInfo website (rcrainfo.epa.gov/). Generators should create an account for all facilities under their control and set up staff permissions by following the instructions found in RCRAInfo Industry Application Help and Guidance document. It is highly recommended that at least two site managers be assigned to each facility.

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 and e-Manifest process. The manifest tracks the shipment from cradle to grave or the point of generation to its final destination. When shipping hazardous waste from a small quantity or large quantity generator, the generator, the transporter, and the receiving hazardous waste TSDF each must sign and keep a copy of the manifest as they handle the waste. The only exception to using a Uniform Hazardous Waste 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 tolling 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 Chapter 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.
- The transporter must be a permitted and registered hazardous waste transporter.

Most waste companies will provide the Uniform Hazardous Waste Manifest needed for shipment and assist with completing the form or e-Manifest. The destination facility will upload any paper manifest information into the e-Manifest system upon receiving the waste. If you need to get your own forms, you must order them from a U.S. EPA registered printer. A link to the approved printers is online on the Uniform Manifest Information Website. You may contact your EGLE District Office, Hazardous Waste Program staff 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-USDOT** training and documentation requirements described in Chapter 4.4.10. There are some limited exceptions where a vendor may sign on behalf of the generator. For questions on that, please contact your EGLE District Office, Hazardous Waste Program staff. Note, due to the current use of the e-Manifest system, generators are no longer required to mail copies of manifests to EGLE.

There are time limits by which small quantity and large quantity hazardous waste generators should receive the manifest copy from the TSDF with their signature verifying receipt. This may require use of the e-Manifest system. Check with your TSDF to be sure. If you do not get your TSDF copy of the manifest with the destination facility signature within the time frames below (via hard copy or the e-Manifest system), you will need to report the matter to EGLE.

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 an email to EGLE-MMD-Site-ID-Reporting@michigan.gov providing a copy of the manifest along with an explanation 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 within that time frame, contact the transporter and TSDF about the shipment. If you still haven't received a manifest copy signed by the TSDF within 45 days after shipment, file an exception report by sending an e-mail to EGLE-MMD-Site-ID-Reporting@michigan.gov.

Very Small Quantity Generator (VSQG) Hazardous Waste Liquids and Liquid Industrial By-Products

As of March 16, 2016, the use of a manifest for shipping liquid industrial by-products and VSQG 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, and
- The name, address, and Site Identification (Site ID) number of the designated facility.

When using a paper manifest for shipping VSQG hazardous waste liquids or liquid industrial by-product for a site that does not have a Site ID, EGLE encourages the use of the following wording so that handlers may easily identify the regulatory status of the shipment:

- Enter "MIVSQG" for shipping very small quantity generator (VSQG) hazardous waste liquids
- Enter "MILIB" for shipping liquid industrial by-product(s)
- Enter "MIVSQGLIB" for shipping both VSQG 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 EGLE's District Office, Hazardous Waste Program staff.

Manifest/Shipping Document Required Recordkeeping

Consider customizing EGLE's generator tracking log for tracking your shipments and verifying proper treatment or disposal. For manifests, be sure to keep a copy of the Uniform Hazardous Waste 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. Retaining electronic copies of these documents is acceptable for inspection purposes, including demonstrating the ability to access the documents on the e-Manifest system. It is recommended, however, to still maintain the hardcopy manifests as a backup. For VSQG hazardous waste liquids and liquid industrial by-products 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 Uniform Hazardous Waste Manifests and shipping documents must be kept by all parties (generator, transporter and receiving TSDF) and be accessible for at least three years.

2.4.5.b Universal Waste

Liquid universal waste shipments (e.g. antifreeze, pesticides, and some pharmaceuticals until RCRA Subpart P for hazardous waste pharmaceuticals is adopted, becomes effective, and their universal waste designation is rescinded) need to have shipping documents to meet the liquid industrial by-products regulations (see Chapter 2.3.2). Although they are not required to be documented on a Uniform Hazardous Waste Manifest 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 US DOT shipping papers if the waste meets the definition of a **hazardous material-USDOT** (see Chapter 4 and **49 CFR 172** and **49 CFR 171.8**). For example, packages containing one pound or more of mercury are subject to US DOT regulation but when in a mercury containing device may be managed as a universal waste. For more details on shipping **hazardous material-USDOT,** contact the Michigan State Police, Commercial Vehicle Enforcement Division at 517-284-3250 or US DOT at 800-467-4922.

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-products 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 for universal waste generators 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:

- 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.

Learn more about the waste regulations, including how to manage universal waste, by viewing EGLE's recorded **Waste Webinar Series.**

2.4.5.c Land Disposal Restrictions

For each waste sent to a TSDF, small quantity and large quantity generators must send a one-time written notice with the initial shipment of hazardous waste to the TSDF. The notice must contain specific language advising the TSDF whether 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 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 even if the waste is destined for non-land-based disposal (incineration). For waste treated on-site prior to shipment, the generator must evaluate whether the waste meets the LDR standards at the point of generation, prior to treatment, not after. 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 268.40 with the hazardous waste numbers generated at the site.

The specific treatment standards are too numerous to include in this guidebook. See U.S. EPA's Land Disposal Restrictions for Hazardous Watse Web page for more information. Also discuss your specific LDR requirements with your TSDF or local EGLE District Office, Hazardous Waste Program staff. Many TSDFs 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.

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 U.S. EPA. See the following rules:

- 40 CFR 262 Subpart H, Section 262.83 for hazardous waste exports.
- 40 CFR 262 Subpart H, Section 262.84) for hazardous waste imports.

Contact U.S. EPA at least 60 days before the intended date of shipment to obtain written consent. U.S. EPA's "Acknowledgement of Consent" document must accompany the shipment at all times. For hazardous waste or universal waste exportation questions, e-mail RCRANotifications@epa.gov or call William Damico, U.S. EPA, Region 5 importation contact 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 U.S. EPA.

2.4.6 BIENNIAL REPORTS

If your site was a large quantity generator, a TSDF, and/or a used oil processor at any time during an odd numbered year, you are required to submit a biennial report by March 1 of every even-numbered year. This report summarizes the previous calendar year's hazardous waste and/or used oil activities at your site.

2.4.6.a Hazardous Waste Biennial Reporting

As of the 2016 reporting year, U.S EPA began collecting biennial reports from large quantity hazardous waste generators and TSDFs electronically via the Biennial Report component of the **EPA RCRAInfo Industry Application (RIA)**. For information about hazardous waste biennial reports, go to the Hazardous Waste Biennial Reporting Webpage and for questions, e-mail **EGLE-MMD-BiennialReport@Michigan.gov**. To stay updated on changes related to Michigan's biennial reporting requirements, subscribe to receive Materials Management Division news and updates.

2.4.6.b Used Oil Biennial Reporting

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. See the Used Oil Biennial Report guidance and the Liquid Industrial By-Products Reporting Web page to learn more about used oil and liquid industrial by-products reporting.

Starting in the 2018 reporting year, used oil biennial reports are to be submitted using the EQP1602 form and instructions. 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 required to be submitted to U.S. EPA (see Chapter 2.4.5.d).

For copies of biennial reports from 2001 to present, go to **Biennial Report Overview | US Environmental Protection Agency** or contact your EGLE District Office, Hazardous Waste Program staff. For copies of biennial reports from 1999 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 site information reported to EGLE can be viewed in the Waste Data System. Go to **EGLE.State.MI.US/WDSWPI** and search using site specific data.

2.4.7 HAZARDOUS WASTE AND UNIVERSAL WASTE ACCUMULATION ON-SITE

There are specific requirements for the accumulation of hazardous waste and universal waste. The requirements include how long the materials can be accumulated before shipping off-site and how the containers must be labeled and handled to prevent any releases. These requirements are detailed in the following sections and Table 2.7 below.

2.4.7.a Accumulation Time and Amount Limits

Hazardous waste and universal waste can be accumulated on-site in containers or tanks for a specified number of days.

TABLE 2.7: Accumulation Time and Amount Limits

Limits	VSQG	SQG	LQG	SQH	LQH
Storage Time Limit	No state time limit if don't exceed weight limits	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
Total Weight Limit at any time	2,200 pounds nonacute or 2.2 pounds of acute or severely toxic hazardous waste	13,200 pounds nonacute or 2.2 pounds of acute or severely toxic hazardous waste	No limit	< 11,000 pounds	No limit

If a site wants to exceed the specified accumulation period, the site 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 EGLE District Office, Hazardous Waste Program staff **PRIOR** to accumulating hazardous waste beyond the exemption period. Extension requests are submitted using an on-line form, followed by submittal of site specific details by e-mail. Extension requests are reviewed on a case-by-case basis and granted for 30-days.

Hazardous Waste

Hazardous waste must be properly accumulated at your facility to prevent contamination of the environment. Table 2.6 summarizes accumulation requirements for generators of hazardous waste. Note, if you are a very small quantity generator, you are not required by law to meet all the requirements provided you do not exceed the 2,200 pounds of nonacute hazardous waste or 2.2 pounds acute hazardous waste accumulation limits. 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. Very small quantity generators are recommended to practice accumulation, secondary containment, and inspection procedures like those required of the small quantity generators to provide safeguards against environmental contamination.

Universal Waste

Universal waste handlers can accumulate universal waste on-site for 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 on-site for 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 aboveground storage tanks. It can also be stored in underground storage tanks, although it is not usually practical for small quantity or very 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.

Small quantity generator tank and large quantity generator tank **inspection checklists** are available at **Michigan.gov/HazardousWaste**. Select **Hazardous Waste and Liquid Industrial By-Products Management**, then expand the **"Forms"** topic.

Contact your local EGLE District Office, Hazardous Waste Program staff for information regarding specific hazardous waste storage tank requirements. See Chapter 2.4.8.a for used oil requirements. In addition, LARA, 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.

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 or freezing temperatures and may overflow or rupture. 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 accumulation area signs alerting people of areas specifically designated for accumulating hazardous waste. However, signage is recommended because it will enhance the safety of staff, visitors, and emergency responders. "No Smoking" signs should also be posted 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 on closed containers.

- Containers must be kept free of any liquids or residues on their exteriors.
- Containers must be compatible with the type of waste being stored in them. EGLE does not maintain a list of compatible materials, but companies can look at the safety data sheets for suggestions.
- Incompatible wastes must not be placed in the same container.
- All containers holding hazardous waste must be inspected weekly for signs of corrosion and leaks. The inspectors are looking at whether inspections have been done at least every seven days.
  - ✓ Large quantity and small quantity generators are required to keep written documentation of inspections for at least three years.
  - ✓ Very small quantity generators are encouraged to keep records.

  EGLE 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.
- 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 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.

To learn more about EGLE's hazardous waste and liquid industrial by-products inspection process and the records inspectors will request, view EGLE's recorded **Waste Webinar Series** available at **Michigan.gov/EGLEevents**.

- Containers must be protected from weather, fire, physical damage (like forklifts or other equipment), and vandals. 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 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.

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 difference between objects and the 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.

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 such as 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 kilograms (2,200 pounds) of liquid hazardous waste and F020, F021, F022, F023, F026, and F027 listed waste.
- Large quantity generators accumulating any amount of liquid hazardous waste and F020, F021, F022, F023, F026, and F027 listed 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, 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.

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 EGLE's multimedia containment guidance for more information about secondary containment for storage of other materials besides waste.

Air Emission Control Requirements (Subparts AA, BB, and CC)

There are additional federal hazardous waste regulations regarding air emissions of hazardous waste from tanks and containers. 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.

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 your company's requirements with your environmental consultant or your local EGLE District Office Hazardous Waste Program staff or go to the U.S. EPA's Web page for **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. Labeling also helps to protect 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 off-site. 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.

US DOT regulations specify which containers, packaging, labels, and placards must be used for shipping **hazardous materials-USDOT**. They also define **hazardous materials-USDOT** 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 US DOT shipping requirements, 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 nonacute 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 satellite accumulation. These containers must be labeled with:

- the words "Hazardous Waste,"
- the hazardous waste number(s) **OR** the chemical name for the contents, **AND**
- an indication of the contents hazards, such as waste characteristics, hazardous statement, pictogram, or National Fire Protection Association (NFPA) chemical hazard label.

See **Operational Memo 111-2** for more information about satellite accumulation.

Containers must be kept closed except when waste is being added or removed. 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 of nonacute hazardous waste or one quart of acutely or severely toxic hazardous waste is not exceeded. Once the volume meets the allowable amount, the container(s) holding the accumulation must also be:

- Labeled with that date (which would be considered the accumulation date)
- Moved into the accumulation area within three days

Academic laboratories have additional options for managing laboratory waste under Rule 315 of the Part 111 Rules. For more details on the federal academic laboratory rule adopted by Michigan, see U.S. EPA's 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 in a hazardous waste accumulation area must be maintained with labels as detailed above in Chapter 2.4.8.a. Therefore, the labeling would include:

- The words "Hazardous Waste."
- the hazardous waste number(s) **OR** the chemical name for the contents,
- 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 for nonacute hazardous waste or one quart of acutely or severely toxic hazardous waste), **AND**

- An indication of the contents hazards, such as waste characteristics, hazardous statement, pictogram, or National Fire Protection Association (NFPA) chemical hazard label.

All labeling information must be clearly visible for inspection.

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. Labels are available from commercial firms including mail order companies. Properly labeled containers must also include:

- Labels clearly identifying the type of waste and its hazards in that particular container,
- The accumulation dates,
- Words or symbols for characteristics such as "flammable" and "corrosive" that are clear and understandable to employees, and
- Label protection from solvents and weather.

You can 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 MSP, Commercial Vehicle Enforcement Division or US 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 unit (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: the words “Universal Waste Electronics” or “Universal Waste Consumer Electronics.”
- Batteries: the words “Universal Waste Battery(ies),” or “Waste Battery(ies),” or “Used Battery(ies).”
- Mercury-containing devices: the words ‘‘Universal Waste-Mercury Containing Equipment,” “Waste Mercury-Containing Equipment,” or “Used Mercury-Containing Equipment” or, if a mercury containing thermostat “Universal Waste-Mercury Thermostat(s),” “Waste Mercury Thermostat(s),” or “Used Mercury Thermostat(s).”
- 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 US DOT.
- Pharmaceuticals: use the original label. If unreadable, it is suggested to label as “Universal Waste Pharmaceuticals” until the federal RCRA, Subpart P provisions are adopted and effective under Michigan’s Part 111 rules. Learn more about the current and future regulations for managing hazardous waste pharmaceuticals by viewing the recorded webinar on pharmaceutical waste regulations after reviewing the webinar notes reflecting changes in the final federal rulemaking.
- Aerosols: the words “Universal Waste—Aerosol Cans,” “Waste Aerosol Cans,” or “Used Aerosol Cans.”
- Antifreeze: the words "Universal Waste Antifreeze," "Waste Antifreeze," or "Used Antifreeze.”

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-USDOT,** 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 517-284-3250 or US DOT at 800-467-4922.

2.4.9 RETAIL SPECIFIC RESOURCES

The federal and state hazardous waste regulations were originally enacted to address a growing problem related to industrial, manufacturing operations, and disposal of hazardous waste. However, the same regulations apply to waste streams generated in small quantities by commercial and service industries, like retailers. While industrial and manufacturing operations typically generate a limited number of waste streams in large volumes, retail often generates very small quantities of the thousands of consumer products they sell. Consumer products may need to be discarded for many reasons including damage, expiration, suspension, and recall. Considering unique retail challenges associated with the many products inventoried that may become a waste at any time in the distribution or sale process, EGLE has developed additional retail-specific resources, which can be found at **Michigan.gov/EGLERetail**.

For retailers interested in minimizing pesticide waste associated with damaged packaging, see the **Pesticide Container Repair Guide**, which details how retailers can establish a pesticide container repair program that allows for sale of certain pesticide containers experiencing minor damage when repaired as specified under a U.S. EPA-approved program.

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 selecting a vendor. 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-products. A transporter needs to be registered and permitted under Act 138 to haul either of these materials.

You might want to tour the TSDF 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** for hazardous waste transporters and TSDFsA 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 EGLE of its designated facility activity (e.g. that accepts liquid industrial by-product for treatment, storage, and/or disposal)? You may search the **Waste Data System** for companies that have notified as beinga liquid industrial by-product designated facilities, liquid industrial by-product(s) transporter or both. Keep in mind that liquid industrial by-products regulations are specific to Michigan. Out-of-state transporters are still required to be permitted and registered for any transportation performed Michigan. Out-of-state liquid industrial by-product TSDF are not subject to Michigan law and therefore are not required to be notified as a liquid industrial by-product designated facility. If shipping to an out-of-state facility, confirm regulatory details with the receiving state's environmental agency.

3. **Waste Approval** - As a generator you should have a thorough understanding of the wastes generated at your site and should have characterization information for each waste generated. When choosing a TSDF, be sure to discuss their waste approval process. Does the TSDF have specific characterization or analytical requirements? If analytical is required by the TSDF, with what frequency and who will be responsible for sampling and costs? Providing a representative waste sample to a TSDF in advance, even if further analytical is not required, can sometimes prevent misunderstanding or miscommunications about the waste services.

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 receiving facility offer special services for small volumes of waste? Some transporters might not service small quantity or very 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 2.7.1 and 2.2.2)? 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 may not accept hazardous waste in certain drum types/sizes or they may require generators to mark containers with internal identification numbers prior to pick-up. It may also be wise to inquire

about pricing for different size/types of containers for wastes where such alternatives could easily be incorporated and result in a cost savings.

9. Does the transporter or TSDF serve other businesses similar to yours and/or in the same geographical area? If so, obtain telephone numbers and contact these companies to evaluate the services they received. If it is feasible to have your waste pickups scheduled in conjunction with other local businesses, it may benefit the transporter and potentially reduce costs for all parties involved.

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. A hazardous waste transporter may only store waste at a transfer facility for up to 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 groundwater 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 partially 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 EGLE District Office, Hazardous Waste Program staff to discuss the compliance history for prospective transporters or a TSDF or review facility files. A facility's compliance history can also be searched using the EPA's ECHO database (Enforcement and Compliance History Online)

13. Is there a written contract? For liability protection, it is a good idea to have a written contract that clearly identifies what specific services the company will provide. Written agreements may help clarify expectations and roles for all parties involved.

14. **Removal Scheduling** - How long does it typically take the transporter to schedule a waste removal, in your area? Does your facility require regular, recurring waste removals or more sporadic cleanouts? Ensuring that waste removals can be coordinated with the transporter in a timely manner to avoid exceeding waste accumulation time limits or storage capacity is important.

Very small quantity generators are not required to hire a permitted and registered hazardous waste transporter or dispose of hazardous waste at a hazardous waste TSDF, but it must be disposed of at a facility that can legally accept the waste using a liquid industrial by-product

permitted and registered transporter. It is recommended that VSQG exempted hazardous waste be sent to a hazardous waste disposal facility or waste recycler. In a few Michigan areas, local household hazardous waste (HHW) collection programs accept hazardous waste from very small quantity generators for a fee. A list of local HHW collection sites is available at Michigan.gov/EGLEHHW. 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 provides a waste approval. A permitted and registered transporter must haul your liquid industrial by-product, unless you haul your own generated liquid industrial by-product and meet the requirements outlined in Chapter 2.3.2. The liquids would need to be solidified before being placed in a municipal solid waste landfill.

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 EGLE. 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) or to waters of the state under a National Pollution Discharge Elimination Systems (NPDES) permit. Any such discharge is only legal IF the discharge is approved by the receiving POTW (see Chapters 2.4.1.d and Chapter 3.2) or under a current NPDES permit issued by EGLE's WRD. The POTW authorization or NPDES permit should be made available for review upon inspection.

Any on-site POTW or NPDES authorized discharge only becomes excluded from regulation as a hazardous waste **at the point of discharge to the sanitary sewer or waters of the state**. In some cases, where the hazardous waste is immediately treated in system subject to the NPDES permit and the system meets the definition of a wastewater treatment unit, the waste is excluded from counting. See the definition of a wastewater treatment unit in Rule 109 of the Part 111 rules, search RCRA Online, and contact your EGLE District Office with questions about what qualifies as a wastewater treatment and is not counted when making a generator category determination, Also recognize that sludges removed from a wastewater treatment unit are a newly generated waste that often exhibit a characteristic or carry a listing and must be counted and managed properly.

So, Any management of the hazardous waste in advance of authorized POTW discharge or waters of the state that is not specifically excluded as specified in Part 111, Rule 303, it is subject to the hazardous waste regulations and must be counted when determining a site'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 POTW and your EGLE District Office, Hazardous Waste Program staff for more information about disposal of hazardous waste to the POTW and how this affects your hazardous waste generator status. Also see Chapter 3 for details on regulations related to waters of the state.

2.4.12 EMPLOYEE EMERGENCY TRAINING

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

2.4.12.a Hazardous Waste Training

Please see the specific training requirements specified under Rule 307(1)(f) and the corresponding federal regulations adopted under 40 CFR 265.16. Training is required for all employees who are involved with hazardous waste management. This includes all personnel at the areas of generation, their supervisors, hi-low drivers who move the hazardous waste, shipping dock employees, emergency coordinators, and anyone else who handles the hazardous waste. Training must be tailored specifically to the hazardous waste procedures relevant to your site, the employee's involvement in handling the waste, the waste hazards, and meeting the handling requirements for the waste. All employees are required to be thoroughly familiar with proper waste handling and emergency procedures relevant to their responsibilities both during normal operations and in emergency situations.

Table 2.8 summarizes the training requirements under the hazardous waste regulations for the different generator categories, while the Contingency Planning Guide highlights the specific requirements for large quantity hazardous waste generators preparation for dealing with an emergency situation.

EGLE encourages all generators of hazardous waste to meet the large quantity generator requirements as best possible to enhance site and community safety. The training requirements for generators are explicit, so the recommendation is to read the federal rules adopted into Michigan's rules found under 40 CFR 265.16.

Facilities may also be subject to MIOSHA training and record keeping requirements, which are not included here. See Chapter 4.4 for training requirements under the transportation regulations, including manifest training.

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 on a day-to-day basis at your site, including implementing the hazardous waste contingency plan relevant to their positions.

TABLE 2.8: HAZARDOUS WASTE TRAINING REQUIREMENTS

Aspect	VSQG	SQG	LQG
Training type	No specific requirements under hazardous waste rules	Informal training [1]	Classroom instruction, online training (e.g. computer based training), or on-the-job training with written description of training program type and amount of training[1]
Written training records	No specific requirements	Verification training occurred is required. Records must be maintained for 3 years	Required written records. ✓For employees who left company, keep records at least 3 years from last day worked. ✓For current employees, keep records until site closes.
Training Schedule	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)
Trainer Qualifications	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.
Manifest & Transportation Training	This is required under US DOT regulations. See Chapter 4.4.10.	This is required under US DOT regulations. See Chapter 4.4.10.	This is required under US DOT regulations. See Chapter 4.4.10.

[1]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, is not sufficient to meet the hazardous waste training requirements. See the specific training required under Rule 307 and the corresponding federal regulations under 40 CFR 265.16.

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

- Using another required emergency training program which does not contain 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
- Failing to maintain training documentation/verification for small quantity generators
- Training provided by someone who is not adequately trained or familiar with the regulations themselves

2.4.12.b 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 site.

2.4.13. Episodic Generation Options for VSQGs and SQGs

As of August 3, 2020, with Michigan's adoption of the Generator Improvement Rules, VSQGs and SQGs of hazardous waste that is managed as part of an episodic event in compliance with Part 111 is exempt from being counted toward the site's hazardous waste generator category or status.

VSQG Requirements for Planned and Unplanned Episodic Events

A VSQG can maintain their existing generator category during a planned or unplanned episodic event if the site meets the requirements specified in Rule 316 of the Part 111 Rules, and the event does not result in an accumulation of more than 6,000 kilograms (13,200 pounds) of nonacute hazardous waste at any one time on-site, If the accumulation is expected to exceed 6,000 kilograms (13,200 pounds) of nonacute hazardous waste, the site must meet the LQG requirements when the site exceeds the LQG generator category limit of 1,000 kilograms (2,200 pounds) of nonacute hazardous waste.

VSQGs are limited to one episodic event per calendar year; however, the generator may petition EGLE for a second episodic event. The second episodic event cannot be the same as the first episodic event (if the first event in the calendar year was planned, the second must be unplanned and vice versa). To maintain VSQG status during an episodic event, the VSQG must comply with the following:

- Notify EGLE of a **planned** episodic event at least 30 calendar days before the event using the Site ID form. The notification must include the start date and end date of the episodic event, the reason(s) for the event, types and estimated quantities of hazardous waste expected to be generated as a result of the episodic event and shall identify a facility contact and emergency coordinator with 24-hour telephone access to discuss the notification submittal or respond to an emergency.

- Notify EGLE by phone or email within 72 hours of an **unplanned** episodic event, followed by written notification of the unplanned episodic event using the Michigan Site ID form. The notification must include the start date and end date of the episodic event, the reason(s) for the event, types and estimated quantities of hazardous waste expected to be generated as a result of the episodic event, and identify a facility contact and emergency coordinator with 24-hour telephone access to discuss the notification submittal or respond to an emergency.
- Obtain a Site ID number, which is issued in response to submittal of the Site ID form.
- Accumulate hazardous waste in containers or tanks, not on drip pads or containment buildings.
- Containers and tanks must be in good condition and compatible with the hazardous waste inside.
- When accumulating hazardous waste in containers, the container must be labeled with:
    - the words “Episodic Hazardous Waste,”
    - a description of the hazardous waste,
    - an indication of the hazards associated with the waste that could include marking it with the hazardous waste characteristic(s) (ignitable, toxic, corrosive, and/or reactive), the hazard communication consistent with US DOT’s placards, a pictogram consistent Global Harmonization Standard for worker protection, or markings consistent with the National Fire Protection Association chemical hazard labels, **AND**
    - the date upon which the episodic event began.
- If the quantity of hazardous waste accumulated on-site ever exceeds 1,000 kilograms, accumulate the hazardous waste containers in an area that complies with the containment requirements of 40 CFR 264.175 and inspect the area weekly for leaks.
- When accumulating hazardous waste in tank(s), the hazardous waste tanks must be marked or labeled with:
    - the words "Episodic Hazardous Waste,"
    - a description of the hazardous waste, **AND**
    - an indication of the hazards associated with the waste, which could include marking it with the hazardous waste characteristic(s) (ignitable, toxic, corrosive, and/or reactive), the hazard communication consistent with the US DOT’s placards, a pictogram consistent Global Harmonization Standard for worker protection, or markings consistent with the National Fire Protection Association chemical hazard labels.
- When accumulating hazardous waste in a tank(s), the generator must use inventory logs, monitoring equipment, or other records to identify the date upon which each episodic event begins and keep the records on-site and readily available for inspection.

- Tanks must be inspected at least once each operating day to ensure all applicable discharge control equipment, such as waste feed cutoff systems, bypass systems, and drainage systems, are in good working order and to ensure the tank is operated according to its design by reviewing the data gathered from monitoring equipment, such as pressure and temperature gauges from the inspection.
- When accumulating hazardous waste in a tank(s), ensure the tank(s) has full secondary containment and a leak detection system to alert personnel to leaks or implement established workplace practices to ensure leaks are promptly identified.
- When accumulating hazardous waste in a tank(s), use inventory logs, monitoring equipment, or other records to identify the date that each episodic event begins and keep the records on-site and readily available for inspection.
- Manage the hazardous waste in a manner that minimizes the possibility of a fire, explosion, or release of hazardous waste or hazardous waste constituents to the air, soil, or water which could threaten human health or the environment.
- Before transporting hazardous waste or offering hazardous waste for transportation off-site, package, label, and mark each package to meet any US DOT regulations that apply under 49 CFR Parts 172, 173, 178, and 179.
- Send the episodic hazardous waste for treatment, storage, and/or disposal within 60 days of the start of the episodic event to a licensed hazardous waste disposal facility using both a Uniform Hazardous Waste Manifest and a permitted and registered hazardous waste transporter.
- Maintain the following records of the VSQG episodic event for at least three years from the end of the episodic event:
    - The beginning and end dates of the episodic event.
    - A description of the episodic event.
    - A description of the types and quantities of hazardous wastes generated during the event.
    - A description of how the hazardous waste was managed and the name of the hazardous waste designated facility that received the hazardous waste.
    - The name(s) of hazardous waste transporters.
    - An approval letter from EGLE, if the generator petitioned for a second event during the calendar year

SQG Requirements for Planned and Unplanned Episodic Events

A SQG can maintain their existing generator category during a planned or unplanned episodic event if the site meets the SQG requirements, manages the episodic waste as specified in Rule 316 of the Part 111 Rules, and the event does not result in an accumulation of more than 6,000 kilograms (13,200 pounds) of nonacute hazardous waste at any one time on-site. If the accumulation is expected to exceed 6,000 kilograms (13,200 pounds) of nonacute hazardous waste, the site must meet the LQG requirements when the site exceeds the LQG generator category limit of 1,000 kilograms (2,200 pounds) of nonacute hazardous waste.

SQGs must maintain records associated with the episodic event. SQGs are limited to one episodic event per calendar year; however, the generator may petition EGLE for a second episodic event. The second episodic event cannot be the same as the first episodic event (if the first event in the calendar year was planned, the second must be unplanned and vice versa).

To maintain SQG status during an episodic event, the SQG must comply with the following:

- Notify EGLE of a **planned** episodic event at least 30 calendar days before the event using the Site ID Form. The notification must include the start date and end date of the episodic event, the reason(s) for the event, types and estimated quantities of hazardous waste expected to be generated as a result of the episodic event, and identify a facility contact and emergency coordinator with 24-hour telephone access to discuss the notification submittal or respond to an emergency.
- Notify EGLE by phone, email, or fax within 72 hours of an **unplanned** episodic event, followed by written notification of the unplanned episodic event using the Michigan Site ID Form. The notification must include the start date and end date of the episodic event, the reason(s) for the event, types and estimated quantities of hazardous waste expected to be generated as a result of the episodic event, and identify a facility contact and emergency coordinator with 24-hour telephone access to discuss the notification submittal or respond to an emergency.
- When accumulating the episodic waste in containers, label the container with the words “Episodic Hazardous Waste” and the date the episodic event began.
- When accumulating hazardous waste in a tank(s), label the tank(s) with the words “Episodic Hazardous Waste” and use inventory logs, monitoring equipment, or other records to identify the date upon which the episodic event began.
- Send the episodic hazardous waste for treatment, storage, and/or disposal within 60 days of the start of the episodic event to a licensed hazardous waste disposal facility using both a Uniform Hazardous Waste Manifest and a permitted and registered hazardous waste transporter.
- Maintain the following records of the SQG episodic event for at least three years from the end of the episodic event:
    - The beginning and end dates of the episodic event.

- A description of the episodic event.
- A description of the types and quantities of hazardous wastes generated during the event.
- A description of how the hazardous waste was managed and the name of the hazardous waste designated facility that received the hazardous waste.
- The name(s) of the hazardous waste transporter(s).
- A written approval from EGLE, if the generator petitioned for a second event during the same calendar year.

- Meet the LDR requirements for the episodic hazardous waste.

SQGs with an episodic event will be charged the LQG handler fee for any year that they have an episodic event.

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.

- EGLE's 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 US DOT.
- U.S. EPA has regulations for land disposal and incineration of infectious waste.
- US 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) also addresses the handling of liquids, semi-liquid blood, or other potentially infectious materials.
- The U.S. Postal Service has guidelines for mailing medical waste under Publication 52 - Hazardous, Restricted, and Perishable Mail and summarized under USPS Packaging Instruction 6D.
- 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 MIOSHA 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.

For wastes generated from households, please see EGLE's brochure titled "The Point Is...Needles Hurt"

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 List found at **Michigan.gov/EGLEMedWaste,** then disposed in a non-hazardous solid waste landfill. Medical wastewaters, like dental and funeral home wastewaters, should never be directed to an on-site septic system as they are only designed to handle sanitary wastewaters from bathrooms, kitchens, and laundry devices.

Find additional information at **Michigan.gov/EGLEMedWaste**. For questions about medical waste call 517-230-9800 or e-mail **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 **Michigan.gov/EGLEMedWaste**, select the "MIEnviro Portal for Medical Waste" choose "For Medical Waste" on the left navigation bar to start the registration process. For registration questions, please contact the Medical Waste Regulatory Program staff at 517-230-9800. or MedicalWaste@Michigan.gov.

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 are required to register.** Discuss requirements about the medical waste on-site management requirements with EGLE's, Medical Waste Program staff.

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 **Michigan.gov/EGLEMedWaste** 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 management plan must be updated whenever any changes in management of medical waste occur and it must be readily available for inspection. A Sample Medical Waste Management Plan is available at **Michigan.gov/EGLEMedWaste.**

2.6 MIXED MEDICAL WASTE MEDICAL WASTE COMMINGLED WITH HAZARDOUS WASTE OR LIQUID INDUSTRIAL BY-PRODUCTS

Medical waste should not be 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 using any approved method included in Chapter 2.5 and disposed of in a sanitary landfill. If medical waste **is mixed** with pharmaceuticals, it must be separated from other medical waste and generally incinerated as a hazardous waste in accordance with federal and state air and waste regulations at a facility authorized to take both medical waste and the pharmaceuticals.

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, like sharps, is a mixed medical waste and must be managed to meet both Part 138 of Act 368 *and* Part 111 of Act 451 and its rules. If the pharmaceutical container is empty, it could be excluded from hazardous waste regulations and only be subject to the medical waste regulations. If separated from any sharps or infectious waste, the empty container may be managed as a solid waste and sent to a municipal solid waste landfill for disposal.

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-products (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-products.

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

Liquid pharmaceutical waste not subject to the hazardous waste regulations is subject to the liquid industrial by-products requirements in Part 121 of Act 451. Pharmaceuticals defined as liquid industrial by-product should not to be 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 authorized to accept pharmaceuticals. As such, often the only disposal option for medical waste commingled with liquid industrial by-product is a permitted and licensed hazardous waste TSDF that is 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. However, solidification is not recommended for medications as they're biologically active agents that are best collected and managed as a liquid industrial by-product and incinerated when disposed. 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 **Michigan.gov/EGLEDrugDisposal**. Consider reviewing the following EGLE resources:

- Handling Unwanted Pharmaceuticals and their Containers in Health Care
- Recorded Webinar on Existing and Proposed Pharmaceutical Waste Regulations
- UPDATED Webinar Notes Reflecting Proposed and Final Federal Rules for Pharmaceutical Waste
- Starting August 21, 2019: New National Rules for Healthcare Governing Pharmaceutical Disposal
- Michigan Health and Hospital Association Healthcare Pharmaceutical Waste Management Guide

Note too that as of August 21, 2019, hazardous waste pharmaceuticals are prohibited from being discharged to the sanitary sewered for disposal. Non-hazardous pharmaceuticals cannot be sewered for disposal either, unless the disposal is specifically authorized by the receiving wastewater treatment plant For questions related to these resources, contact the Environmental Assistance Center at 800-662-9278 or your EGLE District Office, Hazardous Waste Program staff. For questions related to medical waste, see the resources at **Michigan.gov/EGLEMedWaste** and call 517-230-9800 or e-mail MedicalWaste@Michigan.gov.

2.7 MANAGING SPECIFIC WASTE STREAMS

This section provides details regarding the proper management of various types of waste that are commonly generated by businesses. See also EGLE's Waste Quick Look Guide as a helpful resource for quickly understanding the majority of the handling requirements for many of the commonly generated waste streams covered in this section:

2.7.1 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.
- Used as dust control or weed control.
- Burned in municipal solid waste incinerators or other incinerators without energy recovery.

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.

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 the 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, EGLE 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 at the site, this should be sufficient knowledge. A site 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 subject to regulation as a liquid industrial by-product. See U.S. EPA's RCRA Used Oil Rebuttable Presumption Guidancefor 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:

- Burning Used Oil — for facilities burning used oil generated on-site or operating an off-spec fuel burner.
- 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 company.
- Emptying Product Tanks and Containers — for facilities removing materials due to tank closure, maintenance or repair activities.

2.7.1a 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. Very 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).
- Check if any local ordinances pertain to oil storage.
- Provisions should be made to prevent further release if a leak occurs.

2.7.1b 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 AQD staff in your EGLE District Office to determine if an air permit is required and EGLE District Office, Hazardous Waste Program staff to determine if other waste regulations apply.

2.7.2 USED OIL FILTERS

When properly drained, used oil filters can be recycled as scrap metal and the filters are not subject to hazardous waste regulations. Scrap metal recyclers can be found in the Recycled Materials Market Directory. Used oil filters being disposed are exempt from hazardous waste regulations if they are non-tern plated and hot-drained in a manner that removes the oil.

2.7.3 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.. They can also be returned to retailers, distributors, or manufacturers.

Facilities have two options for managing lead acid batteries. The options include:

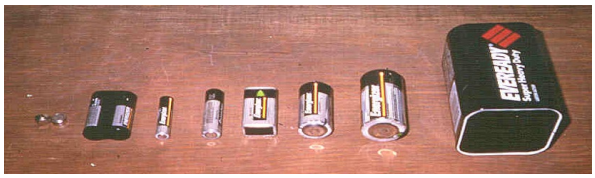
- Recycle them under Rule 804 of the Part 111 rules which exempts them from most of the requirements of Part 111 of Act 451. The generator must characterize the waste batteries and meet land disposal restrictions (see Chapter 2.4.5.c). You do not have to include the battery volume when determining your generator status or use manifests when shipping the used batteries to a recycler; however, US DOT shipping requirements must be met., 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.

Prior to shipping batteries, handle and store batteries in ways that prevents releases. Tips from the Battery Council International for handling lead acid batteries include:

- Never put metal objects on the battery and remove metal jewelry like rings and chains before handling batteries.
- Wear gloves and safety glasses or goggles when working with batteries.
- Avoid getting any acid on your skin or clothing or in your eyes.
- Keep the battery up right and carry it in a non-metal, leak-proof container.
- Do not put excessive pressure on the ends of the battery. If you do not use a battery carrier, place your hands on the opposite corners of the battery to lift and carry.
- Store used lead acid batteries in a manner that prevents their contents from being released into the environment:
- Handle in a way that prevents them from cracking open, such as stacking them only one layer high on a pallet.
- Put in an area constructed with an impervious surface, such as concrete coated with epoxy, or stored in a plastic tub, etc. Some facilities have used a child's plastic swimming pool for containment.
- Have a well-ventilated area.
- Protect them from freezing.
- Secure them from vandalism and away from children and pets.
- Protect them from sparks and flames. Keep batteries in 'no smoking' areas.
- Post the storage area with signs which state safety directions and indicate that hazardous batteries are present.

If a battery is dropped or leaking, one recommendation is to place it in a plastic pail and use baking soda or lime to neutralize any spilled acid. If you get acid spilled on your skin, immediately rinse the area with water and get medical attention. Remember to properly dispose of the used neutralizing material which may be a hazardous waste since it could contain lead or un-neutralized acid. Check with the local wastewater treatment plant to see if they will allow you to discharge any liquid acid to their system. Un-neutralized liquid residue from a spill has a D002 hazardous waste code, and any battery residue that has lead levels of 5.0 mg/l or more has a D008 waste code.

2.7.4 DRY CELL BATTERIES



Standard dry cell, non-rechargeable batteries

Dry cell batteries (AA, C, D, lithium-ion, lithium polymer, etc.) are used to power portable power tools like flashlights, calculators, computers, and clocks. Lithium-ion batteries are more powerful than traditional AA, C, and D dry cell batteries. Lithium-ion batteries are rechargeable, light weight and found in both small and large, cordless items like cell phones, watches, household tools (drills and handheld vacuums), garden tools (weed whackers and garden edgers), and electric vehicles. For dry cell batteries, 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.. Universal waste batteries or containers need to be labeled with the words “universal waste battery(ies),” “waste battery(ies),” “used battery(ies).” And managed to 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 with the site’s generator status.

EGLE does not have a list that identifies if a battery is a hazardous waste. Examples of possible characteristics for dry cell batteries besides corrosivity and reactivity include:

Lithium-ion computer battery

- Lithium ion batteries are rechargeable and come in many different shapes and sizes. They are becoming more and more popular because they are smaller, more powerful, and last longer than dry cell alkaline batteries. Lithium ion batteries are found in all kinds of products like electric vehicles, cell phones, laptops, tablets, cordless power tools, and other handheld rechargeable gadgets. Some are even button-sized and found in small electronic devices like vapes, hearing aids, and watches. If damaged, lithium ion batteries experience thermal runaway and burn quickly and violently reaching temperatures as high as 900 F. This can easily cause surrounding materials to burn, whether it happens at your home, in the garbage truck, at the landfill, or a material recycling facility. For everyone's safety, rechargeable lithium ion batteries should only be charged with the proper charger and recycled promptly to prevent damage and thermal runaway. See U.S. EPA’s Used Lithium-Ion Batteries and Frequent Questions on Lithium-io Batteries websites for more information. Contact your waste hauler and licensed disposal facility to determine if they can assist with safe handling and recycling or disposal of dry cell batteries.

- Alkaline batteries (A, AA, C, DD, etc.) may contain regulated amounts of lead (D008), mercury (D009), and cadmium (D006). Recycling is still recommended for alkaline batteries that are not hazardous waste because they may contain recoverable amounts of magnesium and zinc.
- Lithium-sulfur dioxide (Li/SO2) batteries may exhibit reactivity characteristics (D003).
- Ni Cad batteries may contain regulated amounts of cadmium (D006).

To find battery recycling locations, contact your local electronic device retailer or call2recycle mail back program for lithium ion rechargeable batteries.

Be sure to package batteries for transport in a way that prevents short circuiting that can cause sparking and start a fire. This can be done by packing each battery in a fully-enclosed inner packaging made of non-conductive materials like a plastic bag or separating the batteries from each other and other conductive material in the same package and packing it to prevent damage and shifting while in transport. You can also tape the ends of dry cell, rechargeable, and lithium ion batteries to prevent sparking. For more information, see the U.S. Department of Transportation (U.S. DOT) April 3, 2009, advisory memo to battery recyclers. For a summary of the U.S. DOT regulations related to battery recycling see the Portable Rechargeable Battery Association's webpage on Federal, State, & International Regulations and Standards.

Check out these short videos on preparing batteries for recycling:
- Terminals to tape: Cell phone and computer.
- Applying tape to batteries: AA, cell phone, computer, and button..

2.7.5 ELECTRIC LAMPS

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 for more specific management requirements. EGLE recommends companies handle and recycle their spent lamps. Recyclers can be found in the Recycled Materials Market Directory. Drum top crushers require an air permit prior to installation and operation. For more information on drum crushers, see the guidance at **Michigan.gov/Air** when selecting "Clean Air Assistance" and "Fluorescent Light Bulb Crushers." If you are considering the use of a lamp crusher, contact LARA, Consultation Education and Training Program staff at 517-322-1809 to discuss operating and permitting requirements that address worker safety.

Basic lamp management options include:

- 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 include a statement that the lamps are not a hazardous waste or not a RCRA waste. Recycling of low mercury bulbs is still recommended to reduce a company's potential liability in case contamination were to ever occur 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.
- Assume they are hazardous waste and manage them as universal waste. 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. Broken lamps generally cannot be handled as universal waste in Michigan. Additionally, many recyclers only want to handle unbroken/uncrushed lamps. 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.

  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.
  - LED bulbs contain a small circuit board which can contain lead depending on the age of the bulb. Lead at concentrations of 5.0 mg/l or more are a D008 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, very 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.

2.7.6 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 US DOT approved drum with adequate absorbent such as sawdust to absorb any potential liquid from 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 to send the items to a facility appropriately licensed to handle PCBs. For more information about PCBs in other devices, see Chapter 4.5 and U.S. EPA's TSCA information at **EPA.gov/PCBs** . PCB waste that is liquid must be managed to meet the liquid industrial by-products 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 PCB manifesting requirements with them.

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

Electronic ballasts are common alternative to oil containing ballasts and should be managed in accordance with the electronics guidance (see 2.7.13).

2.7.7 SORBENTS

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

- The landfill has approved them. Check with the landfill operator;
- The sorbents contain no free liquids (they pass the paint filter test); and
- The materials are either of the following:
  - Not a hazardous waste, including sorbents used for oil spills or
  - A hazardous waste generated by a very 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.

Small and large quantity 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.

An EGLE, 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 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 can be reused. Search for sorbent recyclers in the Recycled Materials Market Directory. Visit the **EPA Comprehensive Procurement Guideline Program webpage** to find manufacturers and suppliers of sorbents containing recycled materials.

2.7.8 SHOP TOWELS AND OTHER TEXTILES

Disposable and reusable 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 if they exhibit any other hazardous waste characteristics. Textiles that are spontaneously combustible are a D001 hazardous waste. If textiles were used as a sorbent to clean up spills, also see Chapter 2.7.8.

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.

- If a listed solvent is put onto the textile and the textile is subsequently used to clean a part, the site 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.

In 2013, U.S. EPA issued new federal rules conditionally excluding solvent-contaminated wipes from hazardous waste regulation under 40 CFR 261.4(b)(18). Michigan adopted the federal exclusion into the Michigan rules which became effective in April 2017. Generators meeting the solvent contaminated wipes exclusion may launder and reuse the wipes or dispose of them so long as the provisions of the exclusion are met. A “solvent-contaminated wipe” means a wipe that, after use or after cleaning up a spill meets any of the following:

- contains one or more of the F001 through F005 solvents listed in Rule 220 of the Part 111 rules or the corresponding P- or U-listed solvents found in Rules 224, 225, or 226 of the Part 111 rules.
- exhibits a hazardous characteristic as defined in Rule 212 of the Part 111 rules and that characteristic results from a solvent listed in Part 2 of the Part 111 rules.

- exhibits only the hazardous characteristic of ignitability as defined in Rule 212 of the Part 111 rules due to the presence of one or more solvents that are not listed in Part 2 of the Part 111 rules.

Solvent-contaminated wipes do not include mops, floor mats, and personal protective equipment. Solvent contaminated wipes that contain listed hazardous waste other than solvents; or exhibit the characteristic of toxicity, corrosivity, or reactivity due to contaminants other than solvents, are not eligible for exclusions. Nor are wipes containing trichloroethene (TCE).

When accumulating excluded wipes, the wipes must be contained in closed containers, except for when wipes are being added or removed. The containers must be non-leaking and able to contain free liquids if free liquids occur. The containers must be labeled "Excluded Solvent-Contaminated Wipes." Each excluded wipes container must be stored for no more than 180 days from the date the first wipe was placed in the container. The generator of the excluded wipes must remove all free liquids before sending the container of wipes for cleaning or off-site disposal. Any compacting of excluded solvent wipes is considered treatment and must be performed in accordance with Part 111. If free liquids are generated during solvent accumulation due to percolation, compression, or compaction, they must be characterized and managed as a newly generated waste stream.

Disposable wipes must be sent for disposal to one of the following:

- A municipal solid waste landfill regulated under Part 115, Solid Waste Management, of Act 451
- A municipal solid waste landfill regulated under 40 C.F.R. Part 258, including 40 C.F.R. §258.40.
- A hazardous waste landfill regulated under Part 111.
- A hazardous waste landfill regulated under 40 C.F.R. Part 264 or 265.
- A municipal waste combustor or other combustion facility regulated under Section 129 of the federal Clean Air Act.
- A hazardous waste combustor, boiler, or industrial furnace regulated under Part 111.
- A hazardous waste combustor, boiler, or industrial furnace regulated under 40 C.F.R. Part 264, 265, or 266, Subpart H.

Reusable wipes must be laundered and reused. 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.

Records sufficient to verify the exclusion must be maintained for at least three years and made available upon request. If an intermediary facility is used prior to a final destination disposal facility, the generator must maintain records regarding both the intermediate facility and ultimate disposal facility. Wipes managed to meet the exclusion are not included when calculating a site's generator status. For additional details on meeting the exclusions, including required records and what is considered an adequately closed container for purposes of the solvent wipes exclusions, see the Solvent Contaminated Wipes Guide. For questions regarding hazardous waste textile recycling or disposal and the disposable wipes exclusion, contact your EGLE District Office Hazardous Waste Program staff.

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.

2.7.9 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 2.7.8 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 site 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 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 1.5). If a site is a large quantity generator, also see Chapter 2.4.7.b section on VOC air emissions.

2.7.9a On-site Solvent Recycling

Facilities that use large volumes of solvents should consider recycling the used solvents on-site. 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-products 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).

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.

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	Notes
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**	**1½**	

6 ½ gallons X 6.64 (acetone weight in pounds/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

- Meet the generator hazardous waste or liquid industrial by-products 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
- Operate 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 AQD at your EGLE District Office 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 site's solvent requirements.

2.7.9b 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. 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 2.3.2. Call your EGLE District Office, Hazardous Waste Program staff if you have any questions about reuse or recycling of solvents.

Learn more about EGLE's hazardous and liquid industrial by-products inspection process and the records inspectors will request by viewing the recorded **Waste Webinar Series** available at **Michigan.gov/EGLEEvents**.

2.7.10 AEROSOLS

When managed as universal waste, handlers must manage aerosol cans in a way that prevents a release or any component of universal waste to the environment. Universal waste aerosol cans must be accumulated in a container that is structurally sound, compatible with the contents of the aerosol cans, and lacks evidence of leakage, spillage, or damage that could cause leakage. Containers must be protected from heat sources (e.g., open flames; lightning; smoking; cutting and welding; hot surfaces; frictional heat; and static, electrical, and mechanical sparks).

Leaking or damaged aerosol cans must be either packaged in a separate closed container, overpacked with absorbents, or immediately punctured and drained.

Handlers may sort aerosol cans by type, mix intact cans into one container, and remove nozzles to reduce risk of accidental release.

Handlers that puncture universal waste aerosol cans must recycle the empty punctured cans and meet the following requirements while puncturing and draining the cans:

- Puncturing and draining must be conducted using a device specifically designed to safely puncture aerosol cans and effectively contain the residual contents and any emissions. See Chapter 2.7.10a for information on aerosol can puncturing device requirements.
- Handlers must develop and follow a written procedure detailing how to safely puncture and drain aerosol cans. This procedure must address proper assembly, operation, and maintenance of the puncturing unit, segregation of incompatible wastes, and proper waste management practices to prevent fires and releases. Handlers must maintain a copy of the puncturing device manufacturer's instructions on-site and ensure employees operating the device are trained in the proper procedures.
- Puncturing must be performed in a manner designed to prevent fires and releases into the environment. This includes, but is not limited to, locating the equipment on a solid, flat surface in a well-ventilated area.
- The contents from the waste aerosol can or puncturing device are immediately transferred to a container or tank that meets applicable requirements of 40 CFR 262.14, 15, 16, or 17.
- Handlers must determine if the contents from the emptied aerosol cans are hazardous waste. Any hazardous waste generated from puncturing the cans is subject to all applicable RCRA regulations, and the handler is considered the generator of the hazardous waste.
- Handlers must have a written procedure for cleaning up spills or leaks of the contents of the aerosol cans. A spill cleanup kit must be provided, and all spills or leaks must be cleaned up promptly.
- Handlers may puncture and drain universal waste aerosol cans received from other, offsite handlers.

2.7.10a Aerosol Can Puncturing Devices

Aerosol can-puncturing devices normally fit onto a 55-gallon drum. If you are considering operating an aerosol can puncturing device, first contact your EGLE District Office, AQD and Hazardous Waste Program 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 an EGLE, Hazardous Waste Program hazardous waste permit and license, small quantity generators and large quantity generators must meet the requirements of Rule 503(1)(i) of the Part 111 rules. 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. Very small quantity generators are not subject to this rule.

If you have an aerosol can crushing or puncturing 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 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. See the On-Site Aerosol Can Drum Top Recycling Systems guide for more details on the regulations that apply to on-site recycling systems and direct any questions to the Hazardous Waste Program staff in your EGLE District Office.

2.7.11 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 2.7.8 regarding shop towels and textiles and 2.7.9 regarding parts washers and other solvents). If you have any questions about your waste generated from painting operations, call your EGLE District Office, Hazardous Waste Program staff.

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 2.7.9). 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 and be sure to confirm they are a permitted and registered transporter (see Chapter 2.7).

Example 1: A paint booth operation at the site 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 questions regarding VOC emission from painting operations.

2.7.12 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. A site 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 publicly owned treatment works (POTW) or septic system. It may be necessary to install a silver recovery unit. Before purchasing or leasing a unit, check with the POTW 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.

Very 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 2.3.2 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 US DOT requirements regardless of the status under waste regulations.

Used developer and system cleaners:

Check if the publicly owned treatment works (POTW) 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 2.3.2). 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

EGLE recommends that used film be recycled for silver. Recyclers can be found in the Recycled Materials Market Directory. Very 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.

2.7.13 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 include 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, 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 of business and commercially generated material exempt under Part 111 of Act 451 and its rules.

See EGLE's Electronic Equipment guidance for 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 requirement. A listing of those registered recyclers can be found on the Takeback Program website at **Michigan.gov/EGLEEwaste**. 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 contain 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 **Michigan.gov/EGLEEwaste .**

2.7.14 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 regarding low-level mixed waste (LLMW) and Rule 823 of the Part 111 rules regarding LLMW and naturally occurring and/or accelerator-produced radioactive materials (NARM). Discuss requirements with EGLE by calling 517-241-1275. See Chapter 10 for management of exit signs and industrial smoke detectors.

2.7.15 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, EGLE 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. Antifreeze recyclers can be found in the Recycled Materials Market Directory.

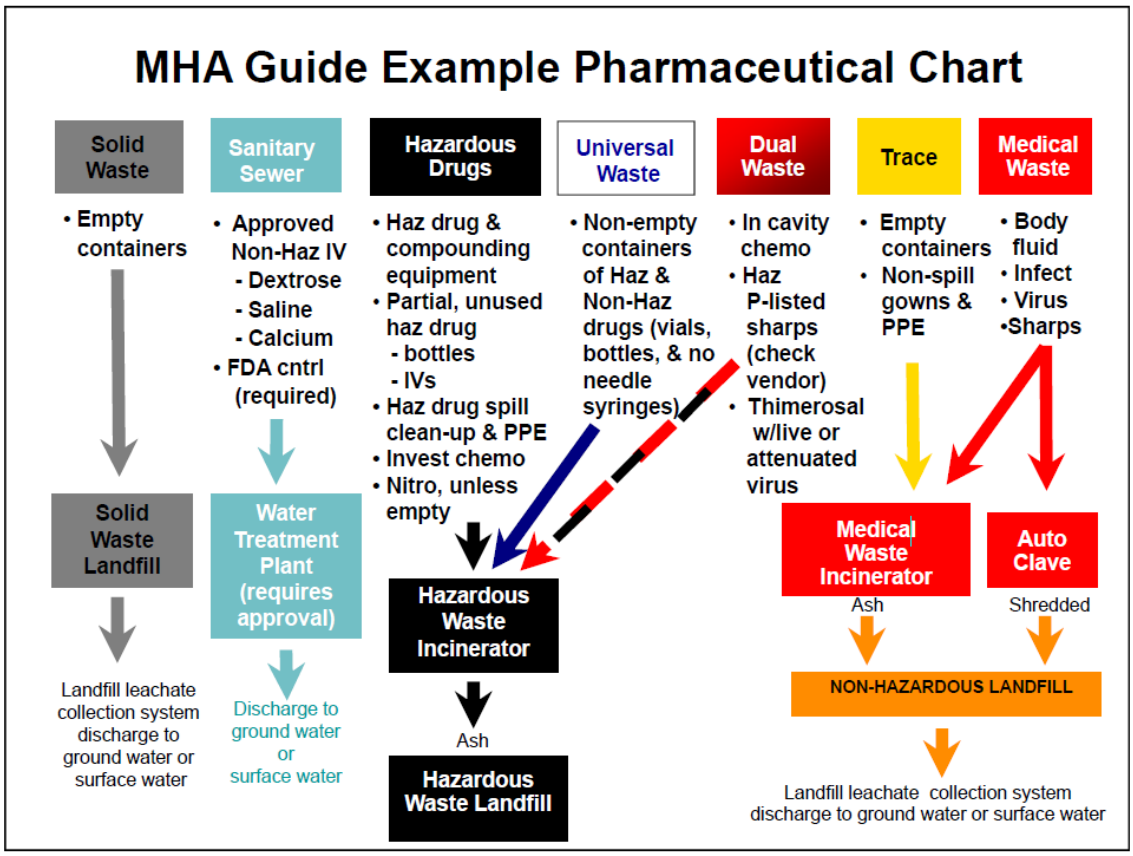
2.7.16 SCRAP METAL

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.

2.7.17 PHARMACEUTICALS

Pharmaceuticals are drugs, regardless of if they are used in the diagnosis, cure, mitigation, treatment, therapy, or prevention of disease in humans or animals. Pharmaceuticals, like any business waste, must be characterized. Some 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, is subject to regulation as a liquid industrial by-product under Part 121 of Act 451, unless specifically exempted. The environmental regulations also have an exemption for empty containers which, when met, allow for some containers that previously held medications to be disposed as a non-hazardous solid waste or recycled.



To assist healthcare providers with understanding current and future regulations pertaining to pharmaceuticals, EGLE has the following resources:

- Handling Unwanted Pharmaceuticals and their Containers in Healthcare – A guide for characterizing unwanted pharmaceuticals and their containers, to determine how the must be handled when no longer able to be administered to a patient.

- **Recorded Webinar on Existing and Proposed Pharmaceutical Waste Regulations in Michigan** –A recorded webinar that discusses current regulations and future federal hazardous waste regulations.
- **Webinar Notes Reflecting Proposed and Final Federal Rules for Pharmaceutical Waste** – Webinar notes that share details delivered in the recorded webinar, links to additional helpful resources, and details on the final federal rulemaking.
- **National Rules for Healthcare Governing Pharmaceutical Disposal**–EGLE noticed on the federal ban on drain disposal of hazardous waste pharmaceuticals which became effective August 21, 2019.
- **Michigan Health and Hospital Association Pharmaceutical Waste Management Guide** – A guide that includes guide sheets for the various types of pharmaceutical and medical wastes. generated by healthcare and best management practices for assisting with meeting worker and patient exposure and waste regulations.
- **MHA Guide Example Posting** – A chart (above) which depicts common healthcare pharmaceutical waste streams, how they are typical handled and how the handling option selected has different environmental impacts.
- **Ten Steps to Developing a Pharmaceutical Waste Management Program –** A list of steps for developing and implementing a pharmaceutical waste management program.
- **Pharmaceutical Waste Disposal Vendor List –** A list of vendors that specialize in handling pharmaceutical waste.

These resources are found at **Michigan.gov/EGLEDrugDisposal** along with resources to help patients properly dispose of household medications. For questions related to these resources, contact the Environmental Assistance Center at 800-662-9278 or your EGLE, District Office, Hazardous Waste Program. For more information on managing mixed medical waste, also see Chapter 2.5 and 2.6.

2.7.18 BIOSOLIDS

"Biosolids" include sewage sludges generated from the treatment of sanitary sewage or domestic sewage. The beneficial reuse of biosolids is subject to a residuals management program approved by WRD under Part 31. Biosolids may be solid, semisolid, or liquid and includes scum or solids removed in primary, secondary, or advanced wastewater treatment processes and any derivatives from these materials. Biosolids managed under a WRD part 31 approved residual management program are subject to the Part 31 permit requirements and excluded from the liquid industrial by-products management requirements. Sewage sludge that is not subject to a residual management program is a by-product or waste and must be managed to meet the liquid industrial by-product regulations if they are a liquid that fails the paint filter test. See the summary table identifying the different regulations that apply to wastewaters transported via public roadway for recycling or disposal for more information. Contact your EGLE, MMD, Hazardous Waste

Program; EGLE, DWEHD, **Onsite Wastewater Management** or **Septage** Program ; or EGLE, WRD, Biosolids Program staff for questions.

2.7.19 MARIJUANA CULTIVATION AND PROCESSING

Marijuana cultivation and processing has expanded as more and more states authorize use of marijuana and marijuana products for both medical and recreational purposes. EGLE's regulations that apply when cultivating and processing marijuana vary from operation to operation and depend on materials and processes used. To learn more about the environmental regulations that apply to these operations, please see the following guidance found on EGLE's Environmental Obligations for the Cannabis Industry Web page and:

- Environmental Compliance Overview for Growers and Processors of Marijuana
- Cannabis and the Environment Frequently Asked Questions
- Materials Management Regulations for Growing and Processing Marijuana

2.7.20 PHOTOVOLTAIC SOLAR PANELS

Photovoltaic solar panels, like all other waste materials, must be characterized when discarded to determine whether they are a hazardous waste. Solar panels can contain toxic metals at concentrations which can make them a characteristically toxic hazardous waste if they contain any of the metals specified in Table 2.3. If the solar panels are a hazardous waste, they must be managed to meet the hazardous waste regulations and ultimately recycled or disposed at an authorized hazardous waste designated facility. To promote recycling of electronic devices, EGLE established consumer electronics as a universal waste type. See Chapter 2.4 for details on managing photovoltaic solar panels as a consumer electronic universal waste or a hazardous waste.

WHERE TO GO FOR HELP

Websites, program contacts, and publications/resources for common waste topics
Search for publications by name/topic at Michigan.gov/EGLEPublications.

Michigan.gov/EnvironmentalAssistance
EGLE Environmental Assistance Center: 800-662-9278 | EGLE-Assist@Michigan.gov

Electronics Recycling
Michigan.gov/EGLEEwaste
EGLE Electronic Takeback Program: 517-449-6153 |

Hazardous Waste and Liquid Industrial By-Product Generators
Michigan.gov/HazardousWaste
EGLE District Office, Hazardous Waste Program

Hazardous Waste and Liquid Industrial By-Products Transporters
Michigan.gov/EGLEWaste
EGLE, Hazardous Waste Transporter Program: 586-753-3850

Hazardous Waste and Liquid Industrial By-Products Manifests and Shipping Documents
EGLE District Office, Hazardous Waste Program

- Manifest Tracking Log
- Liquid Industrial By-Products FAQs
- Consolidated Manifest Operational Memo 121-3

Hazardous, Liquid, and Solid Waste Regulation Questions and Publications
EGLE District Office, Hazardous Waste Program

Hazardous Waste Site Identification Number (U.S. EPA Number)
Michigan Site Identification Form
EGLE, District Office, Hazardous Waste Program

- Site Identification Form (EQP 5150)

Hazardous Waste Licensed Treatment, Storage, and Disposal Facilities
EGLE, Hazardous Waste Program: 517-284-6838
Perform an "Advanced Search" of the Waste Data System (WDS) (select "Hazardous Waste Permitting and Corrective Action," "Legal/Operating Status Code," then "PIOP" for "Permitted – Operating, Actively Managing RCRA-Regulated Waste")

Household Hazardous Waste Collection and Diversion

- Local HHW Programs in Michigan
- List of HHW Collection Companies in Michigan

Liquid Industrial By-products
EGLE District Office, Hazardous Waste Program

Medical Waste Program
Michigan.gov/EGLEMedWaste

Oil Filters Recycling
EGLE District Office, Hazardous Waste Program

Recycling
Local - **Michigan.gov/EGLEHHW**
Commercial: Recycled Materials Market Directory– **Michigan.gov/RMMD**
Residential: Michigan Recycling Directory – **Michigan.gov/RecyclingDirectory**
EGLE Recycling Specialists | Michigan.gov/MIRecycles

Scrap Tire Storage and Disposal; Scrap Tire Registered Haulers and Collection Sites
Michigan.gov/ScrapTires
EGLE District Office, Scrap Tire Program

Solid Waste Landfills
Solid Waste
EGLE, District Office Solid Waste Program

Toxic Substance Control Act, PCB information
EPA.Gov/PCBs
U.S. EPA Region 5: 312-886-7890 | 800-621-8431 | 312-353-2318