Waste 101

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Goal of Today's Discussion:

- Provide an **overview** of the types of waste regulated by the state and federal regulations
- Cover the Following Types of Waste:
  - Hazardous Wastes
  - Solid Wastes
  - Liquid Industrial By-Products
  - PCB/TSCA Wastes
  - Scrap Tires
  - Medical Wastes
  - Radioactive Waste
  - Asbestos

How Do I Start?

- Identify what wastes are generated at your facility
- Tour your entire facility and inventory all waste streams

What is a Waste?

- A waste is any discarded material
- A waste can be a solid, liquid, semisolid, or gaseous material
- A waste is any material that cannot be used for its original intended purpose, including materials that are:
  - Burned as fuel;
  - Accumulated and recycled or reclaimed; or
  - Discarded, abandoned or disposed.
- As a general rule of thumb
  - Less hazardous waste = less regulation & more disposal options under the law
  - There is no one best answer for how to dispose of waste for all businesses & locations

Hazardous Waste

- Regulated under Part 111 of Act 451
- Applies to waste determined to be a threat to human health or the environment
- Applies to all businesses, including municipalities, hospitals & Service industries, not just manufacturing
- Requires generators characterize all their waste streams

Waste Characterization

- Is the waste listed on lists in the hazardous waste rules?
- Does the waste exhibit a characteristic that makes it hazardous?
  - Ignitable
  - Corrosive
  - Toxic
  - Reactive

Listed Hazardous Wastes

- Several different waste classifications prefixed by a letter including:
  - "F" – hazardous waste from non-specific sources (e.g. specific spent halogenated solvents,

plating sludges)
  - "K" – hazardous wastes from specific industries (e.g. wood treatment, organic chemical manufacture, petroleum refining)
  - "P" – discarded commercial chemical products and spill residues that are ALL acutely hazardous wastes (e.g. fluorine, nicotine, toxaphene)
  - "U" – discarded commercial chemical products and spill residues of toxic hazardous wastes (e.g. acetone, benzene, DDT, lindane, methanol)
- Listed hazard waste codes are found in tables the Part 111 rules
- Acutely hazardous wastes are listed with an "H" hazardous code
- Toxic hazardous wastes are listed with a "T" hazard code
- Wastes with a "U" suffix are Michigan-specific hazardous wastes

Characteristic Hazardous Waste Types

- Ignitable - D001
- Corrosive - D002
- Reactive - D003
- Toxic - D004 – D043 (Table 201a)
- Severely Toxic – 001S - 007S (Table 202, includes dioxins & furans)

Characteristic Waste Codes & Common Test

- Flash point – Used for testing Ignitability < 140 F or U.S DOT oxidizer (D001)
  - Examples: paints, solvents
- pH – Used for testing corrosivity ≤ 2 or ≥ 12.5 (D002)
  - Examples: acids, bases
- Reactivity – Test as required for DOT classification for materials that are unstable at normal conditions, reacts violently with water, explode, and/or emit toxic gas (D003)
  - Examples: lithium hydride & trichlorosilane
- TCLP (Toxicity Characteristic Leaching Procedure) - Used for testing leaching potential for Table 201a hazardous constituents (D004-D043)
  - Examples: Paints or sludges containing metals or MEK, contaminated media
- A waste that exhibits severe toxicity is listed in Table 202 of the Part 111 Rules and labeled with the suffix "S".
- TCLP Characteristic Hazardous Waste Codes are found in Table 201a of the Part 111 Rules

Common Exemptions & Exclusions

- Once the hazardous wastes have been identified, check for exemptions or exclusions!
- Wastewater discharges to Part 31 permitted POTW's that are approved by that sewer authority are exempted at the point of discharge to the sewer
- Batteries, pesticides, mercury devices, electric lamps, pharmaceuticals, consumer electronics & antifreeze handled as universal waste enjoy a partial exemption
- Used oils that are recycled
- Petroleum contaminated media from leaking UST systems that fail the TCLP for D018 – D043 only & are being remediated under DEQ approval pursuant to Part 213 of Act 451
- Off-specification fuel (gas, kerosene, diesel, etc.) being recycled into fuel or burned as fuel
- Materials remaining in manufacturing units that would otherwise be hazardous wastes - if taken out of service the material becomes a hazardous waste (degreasers, paint pots)
- Laundered rags that are reused that would otherwise be a hazardous waste
- Household waste, including single & multiple residences, hotels & motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, & day-use recreational areas

- Conditionally Exempt Small Quantity Generator:
  - Monthly hazardous waste generation < 220 lbs. or ~ 1/2 drum non-acute and < 2.2 lbs. acute
  - Total hazardous waste accumulation ALWAYS be less than 2200 pounds (5 drums) non-acute and < 2.2 lbs. acute
  - Wastes are properly disposed under other regulations

Waste Characterization Records

- Records for each waste stream may include:
  - Waste type/description
  - Source of waste
  - Test results
  - Waste analysis records
  - MSDS
  - Sample procedure
  - Representative sample information
- See the Waste Characterization Steps & Questions Guide and Optional Waste Characterization Record

Hazardous Waste Generator Status

- Determined by:
  - Total quantity of hazardous waste generated each calendar month AND
  - The amount of hazardous waste accumulated at any one time
- This information is used to determine the handling & disposal requirements for the waste!!!
- When determining your monthly generator status don't count:
  - Waste excluded from definition of hazardous waste (e.g. recycled scrap metal, recycled fuel, POTW permitted disposal)
  - Universal waste
  - Used oil
  - Empty containers
  - Liquid industrial by-product
- See Chapter 2, Table 2.5 (page 2-49) in the guidebook online at www.michigan.gov/ehsguide

Hazardous Waste Generator Requirements

- See Chapter 2, Table 2.6 (page 2-50) in the guidebook online at www.michigan.gov/ehsguide

Liquid Industrial By-products

- Regulated under Part 121 of Act 451
- Formally known as Liquid Industrial Waste
- Determined by using the Paint Filter Test, EPA Method 9095 of SW-846
- If there are any free liquids in the waste it should be managed as a liquid industrial by-product

Liquid Industrial By-product Examples

- Liquid CESQG hazardous waste
- Liquid waste that is not a listed or characteristic hazardous waste such as:
  - Used oil
  - Catch Basin Clean-Out
  - Antifreeze
  - Recycled Fuel
  - Wastewaters
  - Stormwater Cleanouts
  - Fats, Oils, & Grease
  - Brine

Liquid Industrial By-products Requirements

- Requires waste characterization in accordance with Part 111

- Requires liquid industrial by-products be managed in non-leaking tanks or containers in good condition, kept closed except to add or remove waste
- Requires labeling or marking of containers and tanks to identify their contents
- Requires documents be maintained for at least 3 years
- Requires use of shipping document with defined data elements
- Requires generator to verify receipt of shipment at their designated receiving facility with reasonable time frame
- Requires use of a DEQ permitted, registered, and insured liquid industrial by-products transporter
- Requires transporters to carry registrations and permits in paper or electronic format during transport
- Requires designated facilities maintain a plan to respond to releases
- Requires designated facilities document proper employee training
- Requires designated facilities receiving liquid industrial by-products from off-site to report prior calendar year's activities annually by April 30th
- For more information, see:
  - Attend Liquid Industrial By-products Designated Facility Requirements session on Day 1 at 2:30
  - See Chapter 2, Table 2.5 (page 2-49) in the guidebook online at www.michigan.gov/ehsguide
  - Recorded webinar online at www.michigan.gov/deqwaste under the "Announcements" tab

Solid Waste

- Regulated under Part 115 of Act 451
- If the waste meets a hazardous waste exemptions or exclusions, it is subject to non-hazardous solid waste regulation
- Solid waste must at disposed in a Type II Municipal Solid Waste Landfill or a permitted Municipal Solid Waste Incinerator unless it is recycled or diverted

Landfill Prohibited Materials

- Used Oil
- Liquid Waste
- Lead Acid Batteries
- Hazardous Waste from SQG & LQG
- Low Level Radioactive Waste
- PCB Waste
- Medical Waste
- Empty Drums
- Whole Tires
- Returnable Beverage Containers
- Sewage
- Asbestos (unless landfill approved)
- See Chapter 2.2 (page 2-16) in the guidebook online at www.michigan.gov/ehsguide

Solid Waste Recycling Exemptions

- Concrete Grinding Slurry
- Ethanol
- Lime Sludge
- Manure, Paunch and Pen Waste
- Backyard Composting
- Gypsum Drywall
- Fish Waste
- Scrap Wood

Inert Materials

- Regulated by Part 115 of Act 451
- Inert means there are no listed hazardous wastes or hazardous substances present in a waste at concentrations above current Part 201 cleanup criteria
- Inert materials can include dredged spoils, excavated soils, cement kiln dust, asphalt, certain construction materials, rock, etc.

- Inert materials can be used as alternate daily cover in landfills with DEQ approval
- See Chapter 2.1 (page 2-3) in the guidebook online at www.michigan.gov/ehsguide

Toxic Substances Control Act (TSCA)

- TSCA is implemented by EPA
- TSCA applies to the manufacture, processing, distribution, marking, use, storage, cleanup, and disposal of PCB containing wastes (e.g. dielectric fluids, heat transfer fluids, capacitors, hydraulic fluids containing PCBs)
- 3 action levels for total PCB concentrations:
  - less than 50 ppm
  - 50 ppm to less than 500 ppm
  - equal to and greater than 500 ppm
- Depending on PCB concentration, some PCB containing waste must be shipped on a uniform manifest and disposed at a TSCA authorized disposal facility
- See Chapter 4 for details on TSCA PCB requirements
- See PCB experts in the assistance area
- Visit the assistance area in the Exhibitor Hall and discuss your questions with the experts
- Contact EPA Region 5 at 312-886-7890, 800-621-8431, or 213-353-2318, or www.epa.gov/pcb
- See Chapter 4.5 (page 4-26) in the guidebook online at www.michigan.gov/ehsguide

Scrap Tires

- Regulated under Part 169 of Act 451
- Requirements for scrap tire generators include:
  - Store tires in a safe manner and the location of generation
  - Ensure scrap tires are taken to a registered tire collection site
  - Haulers must register annually
  - Obtain and keep copies of scrap tire manifests.
- Additional information is available through the DEQ's Scrap Tire Program at 517-241-2924, 517-284-6588, or www.michigan.gov/scraptires
- See Chapter 2.2.2 (page 2-19) in the guidebook online at www.michigan.gov/ehsguide

Medical Waste

- Regulated under Part 138 of Act 368
- Medical waste includes waste that may be infectious to humans and animals like:
  - liquid human and animal blood and body fluid wastes
  - biological production wastes
  - cultures of infectious agents including lab wastes,
  - pathological wastes
  - sharps such as needles, scalpels, and intravenous tubing
- Many agencies regulate medical waste, including:
  - DEQ – regulates how generators must handle their med waste from point of generation to disposal
  - EPA – has requirements for land disposal and incineration
  - DOT – regulates packaging, labeling, shipping, and transportation
  - MIOSHA – regulates handling of bloodborne infection diseases for worker exposure protection
- Additional information is available by calling the DEQ's Medical Waste Program at 517-284-6590, 517-284-6594, or www.michigan.gov/deqmedwaste

Radioactive Wastes

- Includes naturally occurring and/or accelerator-produced radioactive material (NARM) and low-level

mixed waste (LLMW)

- Subject to Rule 823 of Part 111
- NARM and LLMW wastes are possibly exempt from the definition of hazardous waste if certain conditions apply, such as if it meets the acceptance criteria of a low-level radioactive waste disposal facility or eligible NARM waste
- NARM and LLMW waste must meet or be treated to meet LDR treatment standards
- Attend the Radioactive Materials Handling & Emergency Preparedness session on Day 2 at 1:15
- See Chapter 10 in the guidebook online at www.michigan.gov/ehsguide

Asbestos

- Used in more than 3000 products over the past 100 years for its insulation and fire protective properties
- Common products include pipe insulation, floor and ceiling tiles, and electrical appliance insulation
- Found in a wide range of settings including industrial and manufacturing, school and universities, and residential properties
- Generally disposed in Type II Municipal Solid Waste landfill approved to accept asbestos-containing wastes under TSCA
- Disposal regulated under the National Emission Standards for Hazardous Air Pollutants (NESHAP) by DEQ, AQD Asbestos program
- Asbestos is the general name of a group of minerals with a similar propensity to become airborne and cause damage to lungs like Chrysotile, Amosite, and Crocidolite.
- Additional information about notification, handling, and disposal is available through the DEQ, AQD, NESHAPs Asbestos Coordinator at 517-373-7064
- See Chapter 1.16 (page 1-19) in the guidebook online at www.michigan.gov/ehsguide