



Hazardous Waste and Liquid Industrial By-Product Accumulation

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Today's Goals

- Identify Generator Accumulation Requirements for
 - Liquid Industrial By-Product Generators
 - Used Oil
 - Universal Wastes
 - Conditionally Exempt Small Quantity Generators
 - Small Quantity Generators
 - Large Quantity Generators
- Introduce Basic Applicability Concepts Related to
 - Hazardous Waste Tanks
 - Subpart CC
- Define Closed Containers

Do I Need to Know All of This?

- Hazardous waste regulations...
- apply to all businesses, including municipalities, hospitals, & service industries, not just manufacturing industries
- are written broadly to address hazards posed by all waste streams

Why Cover These Topics?

- Hazardous waste regulations require each business to...
 - Properly label all containers of hazardous and liquid industrial by-product
 - Properly store all containers of hazardous and liquid industrial by-product to prevent the escape of any constituents into the environment

Why Cover These Topics?

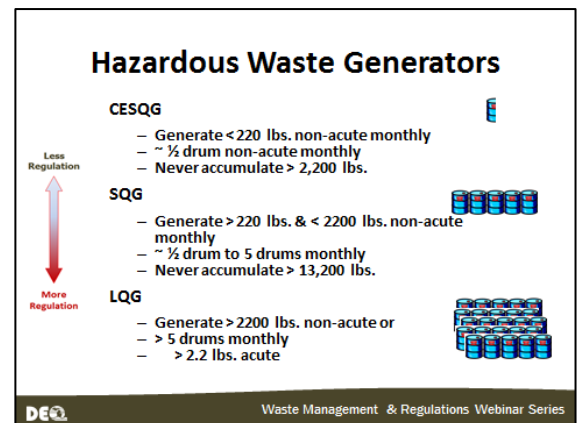
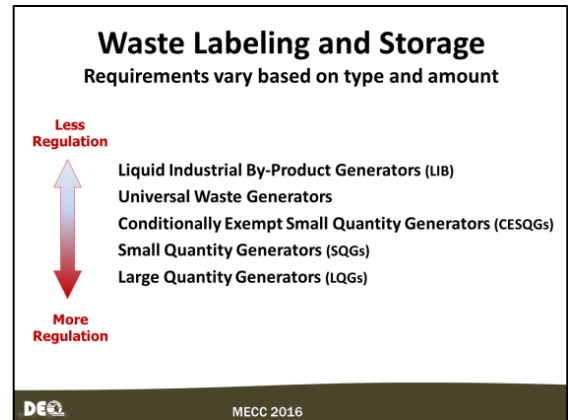
- Proper accumulation and storage will...
 - Prevent release to the environment
 - Prevent costly clean up expenses

Waste Labeling and Storage Regulations

- Act 451, Michigan Natural Resources & Environmental Protection Act:
 - Part 111, Hazardous Waste
 - Part 121, Liquid Industrial By-Product
 - Part 115, Solid Waste
 - Part 169, Scrap Tires
- Act 368, Michigan Public Health Code:
 - Part 138, Medical Waste Regulatory Act
 - Part 2, Ionizing Radiation Rules
- Federal Toxic Substance Control Act (TSCA)

Liquid Industrial By-product Generators

- Part 121, Section 12103 - Liquid industrial by-product, a liquid waste not subject to hazardous waste regulation, must be placed in containers or tanks that are labeled or marked to identify their contents



- Part 121, Section 12113 - Liquid Industrial by-product tanks and containers must be:
 - Kept closed or covered when not in use and free of by-product or residues on the exteriors
 - Protected from weather fire physical damage and vandals
 - Managed to prevent release to the environment

Used Oil (Part 111, Rule 810)

- Used oil must also be:
 - Labeled “Used Oil” if stored in a container or above ground storage tank
 - Have fill pipes used to transfer used oil labeled “Used Oil”
 - Only stored in containers or tanks
 - Stored in containers in good condition with no visible signs of leaks
- View the [recorded Used Oil Recorded Webinar](#)

Universal Waste Types (Part 111, Rule 228)

- Batteries
 - Pesticides
 - Mercury containing equipment
 - Lamps
 - Pharmaceuticals
 - Consumer electronics
 - Antifreeze
- } Michigan Only

Universal Waste Batteries (Part 111, Rule 228(4))

- Containers must be:
 - Labeled “Universal Waste Batteries,” “Waste Batteries,” or “Used Batteries”
 - Kept closed
 - Structurally sound & compatible with the contents
 - Managed to prevent leaks or releases to environment

Universal Waste Pesticides (Part 111, Rule 228(4))

- Labeled “Universal Waste Pesticides” or “Waste Pesticides”
- Kept closed
- Structurally sound, compatible with the contents, and free of evidence of leakage, spillage or damage
- Managed to prevent leaks or releases to environment
- Meet all tank requirements if using tank storage

Universal Waste Mercury Containing Equipment (Part 111, Rule 228(4))

- Containers must be:
 - Labeled “Universal Waste Mercury Thermometers,” “Waste Mercury Thermometers,” or “Used Mercury Thermometers,” and substitute the name of the device if it is not a thermometer
 - Structurally sound, compatible with contents of device with no evidence of leakage or spillage
 - Designed to prevent the escape of mercury

Universal Waste Electric Lamps (Part 111, Rule 228 (4))

- Containers must be:
 - Labeled “Universal Waste Lamps,” “Waste Lamps,” or “Used Lamps”
 - Structurally sound and compatible with contents of lamps
 - Able to prevent breakage
 - Kept closed

Universal Waste Pharmaceuticals (Part 111, Rule 228 (4))

- Must be managed to prevent release of any universal waste and packaging must be:
 - Structurally sound and compatible with contents
 - Able to prevent breakage
 - Kept closed
- Recommend label “Universal Waste Pharmaceuticals” in:
 - MHA Pharmaceutical Waste Management Guide

- MHA Guide Example Posting
- Pharmaceutical Tutorial

Universal Waste Consumer Electronics (Part 111, Rule 228(4))

- Packaging must be:
 - Labeled “Universal Waste Consumer Electronics” or “Universal Waste Electronics”
 - Managed to prevent breakage
 - during normal handling conditions
 - www.michigan.gov/degewaste

Universal Waste Antifreeze (Part 111, Rule 228(4))

- Containers must be:
 - Labeled “UNIVERSAL WASTE ANTIFREEZE” or “WASTE ANTIFREEZE” or “USED ANTIFREEZE”
 - Kept closed
 - Structurally sound & compatible with the contents
 - Managed to prevent leaks or releases to environment

Universal Waste Recorded Webinar

- View the [recorded Universal Waste Webinar](#)
- Download the [Universal Waste Webinar notes](#)

Conditionally Exempt Small Quantity Generators

- Part 111, Rule 205(2)(c) – Accumulation area must be protected from weather, fire, physical damage, and vandals
- Part 111, Rule 205(2)(d) – Waste must be accumulated so that constituents cannot escape by gravity into soil (directly or indirectly), into surface water or ground water, into drains or sewers, or to the air in violation of Part 55

Small Quantity Generators (Part 111, Rule 306(4))

- Containers must:
 - Be labeled “Hazardous Waste”
 - Have accumulation date (visible)
 - Have hazardous waste numbers
 - Be in good condition
 - Be stored closed
 - Be handled & stored to prevent leaks
 - Be inspected weekly
 - Be compatible with the waste
 - Not contain incompatible wastes
 - Be separated from each other if incompatibles
 - Be washed if they previously held incompatibles
 - Have secondary containment if > 1000 kg (2,200 lbs.) or ~ 5 drums

Large Quantity Generators (Part 111, Rule 306(1))

- Containers must:
 - Be labeled “Hazardous Waste”
 - Have accumulation date (visible)
 - Have hazardous waste number(s)
 - Be in good condition
 - Be stored closed
 - Be handled & stored to prevent leaks
 - Be stored 50 feet from property line if ignitable and/or reactive (written local FD approval if distance < 50 feet)
 - Be inspected weekly
 - Inspections must be documented (kept on-site 3 years)
 - Not contain incompatible wastes
 - Be separated from each other if holding incompatibles
 - Be washed if previously holding incompatibles

- Have secondary containment

Generator Accumulation/Storage Time Frames

- SQG's
 - Generate > 220 lbs. & < 2200 lbs. non-acute monthly
 - Accumulate not more than 13,200 lbs.
 - Store 180 days or less
- LQG's
 - Generate > 2200 lbs. non-acute or > 2.2 lbs. acute or severely toxic monthly
 - Store 90 days or less

Secondary Containment - Same for SQGs and LQGs

- Small Quantity Generator – Part 111, Rule 306(4)(b) refers to 40 CFR 264.175
- Large Quantity Generator – Part 111, Rule 306(1)(a) refers to 40 CFR 264.175
- Per Part 111, Rule 306 & 40 CFR 264.175, Secondary Containment must:
 - Have an impervious base free of cracks`
 - Hold 10% of total container volume or volume of the largest container whichever is greater
 - Prevent run on - unless of sufficient capacity
 - Have accumulated liquids removed to prevent over-flow

Satellite Containers - Same for SQGs and LQGs (Part 111, Rule 306(2))

- Must be accumulated at or near the point of generation and containers must:
- Be < 55 gallons of hazardous waste (all types/all containers combined)
- Be < 1 quart of acutely or severely toxic waste
- Be under the control of the operator
- Be labeled "Hazardous Waste"
- Be labeled with either the hazardous waste number(s) or chemical name
- Containers must be:
 - In good condition
 - Compatible with the waste in them
 - Closed when not in use
 - Marked with date and moved to storage area within 3 days of exceeding 55 gallons non-acute or 1 quart severely/acutely toxic
 - Managed to prevent leaks

Compartmenting Labeling Requirements

- LIB/CESQG - Liquid wastes from CESQGs do not have any marking requirements under the conditionally exempt small quantity generator regulations but they are also subject to liquid industrial by-product regulations and must be marked to identify their contents
- SQG/LQG Accumulation Containers - Both have to mark accumulation containers with the words "Hazardous Waste", the waste code(s) of the waste, and the accumulation start date
- SQG/LQG Satellite Containers - Both have to mark satellite containers with the words "Hazardous Waste" and either the waste code of the waste OR the chemical name or names of the waste

Academic Laboratories (Part 111, Rule 313 & 40 CFR 262.200)

- Adopted into Michigan rules in November 2013
- Applies to colleges, universities, or college - university affiliated teaching hospitals and non-profit research institutes
- Allows academic entities to decide when & where on-site hazardous waste determinations are made
- Requires hazardous waste determinations to be made by trained professionals (not students)
- Requires development of a lab management plan
- Requires hazardous waste to be removed every six months
- Unused hazardous wastes generated during once/year lab clean-out are not counted towards generator status
- Comparison of Subpart K, Academic Lab Rule vs. Satellite Accumulation, see www.epa.gov/wastes/hazard/generation/labwaste/saa-vs-alr.pdf

Hazardous Waste Tanks (Part 111, Rule 306 & 40 CFR 265)

- Applies to SQG & LQG
- Found in 40 CFR 265, Subparts J & I
- Tanks must:
 - Be labeled “Hazardous Waste”
 - Be marked with accumulation date
 - Not contain wastes which could cause rupture, leaks, corrosion or other failures
 - Be managed to prevent reactions that would threaten human health and the environment
 - Be decontaminated (washed) if they previously held incompatible waste before adding waste
- Additional Tank Requirements :
 - Ignitable and reactive wastes (40 CFR 265.198)
 - Controls and practices to prevent spills & overflows (40 CFR 265.194)
 - Secondary Containment (40 CFR 265.193)
 - Inspection Requirements and Records
 - Tank Certification (40 CFR 265.192)
- Inspection Requirement and Records
 - All tanks must be inspected each day, including overflow and spill control devices
 - All tank inspections must be documented and all documents must be kept for at least 3 years

Hazardous Waste Tanks Certification (Part 111, Rule 306 & 40 CFR 265.192)

- Must obtain a written assessment that is reviewed and certified by a “qualified professional engineer: that includes:
 - Design standards
 - Hazard characteristics of the waste
 - Determination performed by corrosion expert if the external shell of a metal tank is in contact with soil or water
 - Design considerations if tank affected by vehicles
 - Professional engineer written certification must be kept on file AT FACILITY
 - **As of a 2006 federal rule change which is adopted by reference into the Michigan rules, an “independent” and “registered” professional engineer is no longer required**

Subpart CC Rules - What Are They?

- EPA rules for controlling certain air emissions from hazardous waste storage containers
- Part 111, Rule 306 (1) and Rule 634 adopts by reference 40 CFR Part 264, Subpart CC
- Certain LQGs and treatment, storage, and disposal facilities (TSDFs) are subject to 1 of 3 different sets of requirements for containers/tanks
- Container/tank requirements depend on:
 - the size of container
 - the organic content of the waste placed in the container
 - whether or not waste stabilization occurs in container
- TSDFs as well as certain LQGs must comply with Subpart CC if they:
 - generate a hazardous waste which has an average volatile organic (VO) concentration > 500 parts per million by weight (ppmw) at the point of waste origination and
 - it is stored in containers larger than ~ 26 gallons
- SQGs are exempt from Subpart CC

Subpart CC Rules - Exemptions

- Exemptions:
 - Wastewater treatment units
 - Elementary neutralization units
 - Emergency or spill management units
 - Waste recycling units
 - Satellite accumulation units
 - RCRA empty containers
 - If organic content is reduced prior to waste being placed in container

- If hazardous waste < 500 ppmw, records to be kept:
 - Test Results
 - Date, time, and location of sampling for EACH hazardous waste
 - Measurements
 - Calculations
- Records documenting the rationale for the exemption must be reviewed and updated, when necessary, and at least once every twelve months
- Records must be maintained on-site for 3 years

Subpart CC Rules -Definitions

- 40 CFR 265.1081 – “Light Liquid Service” means:
- Vapor pressure of one or more of the organic constituents is > 0.3 kilopascals at 20 degrees Celsius and the total concentration of organic constituents is equal to or greater than 20percent by weight

Container Requirements

- **Level 1** Container (26 to 122 gal. light liquid service)
 - 40 CFR 265.1087(c)
 - DOT Approved
 - Covers and closure devices for all openings
 - Open top with organic vapor suppressing barrier
- **Level 2** Container (>122 gal. light liquid service)
 - 40 CFR 265.1087(d)
 - DOT approved
 - Vapor tight or operated with no detectable emissions
- **Level 3** Container (Waste Stabilization Unit)
 - 40 CFR 265.1087(e)
 - Vented (or located in enclosure that is vented) through closed vent system to a control device

Subpart CC Rules - Tanks Defined

- Level 1 Tanks - 40 CFR 265.1084(c)
- Level 2 Tanks – 40 CFR 264.1084 (d)

Subpart CC Rules - Tank Requirements

- All tanks subject to Subpart CC control requirements must be inspected
- Inspection procedures and requirements vary by type of tank
- Records of all inspections regardless of the tank control level must be kept at the facility for a minimum of 3 years after the date of the inspection
- More detailed record keeping and inspection requirements are required for floating roof tanks and tanks or enclosures which vent to a control device

Closed Container - What Is It?

- Regulations do not define “closed container”
- Requiring containers to be closed is a means to minimize emissions of volatile wastes, to protect ignitable or reactive wastes from sources of ignition or reaction, to prevent spills, to reduce the potential for mixing of incompatible wastes and reduce direct contact of personnel with waste

Closed Container - Liquid Hazardous Waste

- For containers in storage:
 - Cover secured with snap rings bolted
 - Bungholes capped
 - If needed, pressure-vacuum relief valve to avoid explosions
- For containers in satellite accumulation:
 - Lids properly affixed to prevent spills
 - Funnels with manual or spring-loaded lids or tightly screwed into bung hole with a one-way valve



Closed Container - Solid Hazardous Waste

- Container is closed if there is complete contact between the lid and the rim all around the top of the container or if continuously receiving wastes, containers must be capable of catching and retaining all of the material