Hazardous Waste Regulations and the Metal Finishing Industry

PURPOSE OF PRESENTATION

- Provide an overview of hazardous waste regulations applicable to metal finishing facilities that are generators of hazardous waste
- Provide specific examples of hazardous waste violations noted during inspections
- Provide an overview of a typical HW inspection

DISCLAIMER!

- This presentation:
  - does not cover every environmental requirement
  - is only to provide an overview of hazardous waste regulations pertinent to the metal finishing sector
- You are responsible to ensure your waste management practices are in compliance with all pertinent federal and state and local regulations.

Goals of the Resource Conservation and Recovery Act (RCRA)

- To protect human health and the environment
- To reduce waste and conserve energy and natural resources
- To reduce or eliminate the generation of hazardous waste as much as possible

RCRA

- Subtitle C relates to Hazardous Waste
  - 40 Code of Federal Regulations (CFR) Parts 260 - 279)
    - Generator requirements
    - Transporter requirements
    - Treatment, storage, and disposal (TSD) facility requirements
    - Used Oil requirements
    - Universal Waste requirements

Definition of Solid Waste

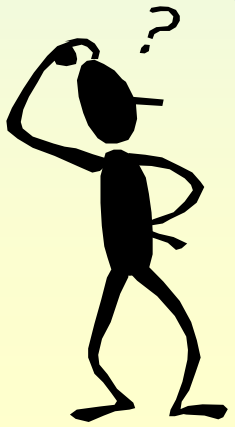
- In order for a material to be a “hazardous waste” it first must be a “solid waste.”
- The term “solid waste” is defined at 40 CFR 261.2(a)(1) – “ A solid waste is any discarded material that is not excluded by 261.4(a) or that is not excluded by a variance granted under 260.30 and 260.31.” A solid waste can be solid, liquid, or contained gases.

Definition of Solid Waste

- The definition of “discarded” includes:
  - Abandoned materials (including burned, disposed, or discarded materials);
  - Recycled materials (including accumulated, stored, or treated materials);
  - Inherently waste-like materials, and;
  - Military munitions

Hazardous Waste Determinations

- If your waste is a solid waste, it may be a hazardous waste:
  - Has a hazardous waste determination been made on your wastes?
  - A hazardous waste determination is required by 40 CFR Part 262.11
  - Hazardous waste determination required when waste is first generated - not prior to shipment offsite



Hazardous Waste Determinations

- A generator should determine if the waste is a listed waste
- If the waste is not listed, the generator must determine whether the waste is characteristic by either: 1) testing, or 2) applying knowledge of the waste in light of the materials or processes used

Hazardous Waste Determinations – Listed Wastes

- Is the waste a listed hazardous waste under 40 CFR 261 Subpart D?
  - Solvents – F001-F005
  - Electroplating wastewater treatment sludge - F006
  - Spent cyanide plating bath solution – F007
  - Plating bath residues from cyanide plating process – F008
  - Spent stripping and cleaning bath solutions from cyanide plating process - F009
  - Aluminum chemical conversion coating wastewater treatment sludge - F019
  - There are also K and P-listed wastes

Hazardous Waste Determinations – Characteristic Wastes

- If not listed, is the waste a characteristic waste under 40 CFR 261 Subpart C?
  - Ignitable - D001 (i.e., solvents)
  - Corrosive - D002 (i.e., acid and/or caustic baths)
  - Reactive - D003 (i.e., cyanide reacting to low or high pH)

Hazardous Waste Determinations – Characteristic Wastes

- Or, does the waste have a toxicity characteristic per 40 CFR 261 Subpart C?
  - Toxic (Toxicity Characteristic Leaching Procedure Test (TCLP)) for a variety of metals and chemicals, including (but not limited to):
    - Cadmium - D006
    - Chromium - D007
    - Lead – D008
    - Mercury – D009
    - Selenium – D010
    - Silver – D011

Types of Wastes Generated at Metal Finishing Facilities

- Rinsewaters/Wastewaters
- Plating bath sludges
- Spent filters
- Dust from grinding and/or polishing operations
- Spent anodes
- Spent plating baths

Types of Wastes Generated at Metal Finishing Facilities(cont.)

- Spent acids or bases
- Spent or used stripping bath solutions
- Etching solution wastes
- Wastewater treatment filter cake
- Spent solvents and/or paints
- Chemicals that are off-specification or have exceeded their shelf life

Types of Wastes Generated at Metal Finishing Facilities(cont.)

- Spill residue (i.e., kitty litter, soils, liquids, etc.)
- Maintenance tools (i.e., mops, brooms, etc.)
- Used Oil
- Used Personal Protective Equipment
- Waste paint-related materials (includes solvents used for cleaning)
- Spent fluorescent lamps
- Spent batteries

Typical Hazardous Waste Determination Violations (40 CFR 262.11)

- Failure to make a hazardous waste determination
- Inadequate hazardous waste determination
- Failure to have supporting waste determination documentation

Generator Status

- Generators should identify and count (determine the quantity) of all hazardous waste generated each month
- How much hazardous waste generated per month determines what regulations are applicable to your facility

Generator Status (cont.)

- Is your facility a Large Quantity Generator (LQG) or Small Quantity Generator (SQG)?
  - LQG: generates 1,000 kg or more of HW or >1 kg of acute hazardous waste in a month
  - SQG: generates less than 1000 kg/mo of HW in a month and accumulates no more than 6,000 kg at any time
- A generator's status can change month to month

Generator Status (cont.)

- How much waste does that represent ?
  - LQG – generates more than 5* drums of hazardous waste (≥ 1000 kg) in a month
  - SQG – generates up to five* 55-gallon drums (1,000 kg) of waste per month

* Very approximately

LQG Requirements

- Conduct hazardous waste determination (40 CFR 262.11)
- EPA ID number required (40 CFR 262.12)
- Store hazardous waste less than 90 days
  - except for F006 waste (up to 180 days, per 262.34(g)) **IF**:
    - Pollution prevention measures have been implemented
    - Accumulate or store no more than 20,000 kg
    - The F006 waste is legitimately recycled through metals recovery
    - Written procedures

LQG Requirements (cont.)

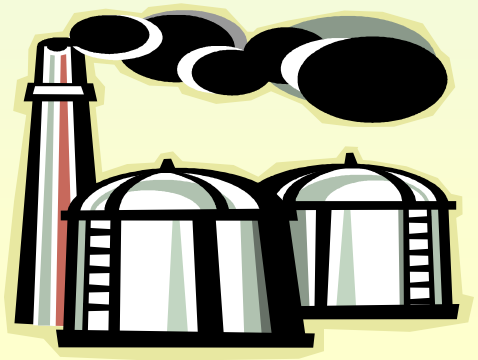
- Label HW as soon as it is placed in a container
  - Include starting date of hazardous waste accumulation on each container (40 CFR 262.34(a)(2))
  - Mark each hazardous waste container with the words “Hazardous Waste” (40 CFR 262.34(a)(3))
  - In California, labels must also include:
    - composition and physical state of waste
    - hazardous properties of the waste
    - facility name and address

LQG Requirements (cont.)

- Keep HW containers closed (40 CFR 265.173)
- Ensure containers are in good condition (40 CFR 265.171)
- Maintain adequate aisle space (40 CFR 265.35)
- Inspect the hazardous waste storage areas weekly (40 CFR 265.174)
- Label oil going for recycling with the words “USED OIL” (40 CFR 279.22(c))

LQG Requirements (cont.)

- Hazardous Waste Tank Requirements (40 CFR 265 Subpart J) include:
  - Daily inspections
  - Secondary containment
  - Professional certification
  - Leak detection system

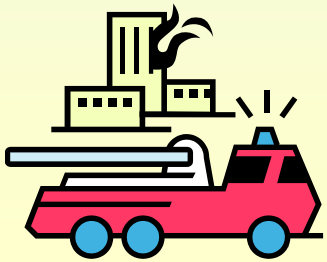


LQG Requirements (cont.)

- Complete hazardous waste manifests
- Ship hazardous waste to a permitted Treatment, Storage and Disposal Facility (TSDF)
- Must have communication or alarm system (40 CFR 265.34)
- Emergency equipment required (40 CFR 265.32)

LQG Requirements (cont.)

- Contingency plan required (40 CFR 265.50-56), including:
  - Descriptions of arrangements with local emergency response agencies
  - Lists the names, addresses, and phone numbers of persons qualified to act as emergency coordinators
  - Lists all emergency equipment
  - Provides locations and physical descriptions of the equipment
  - Outlines emergency equipment capabilities
  - Includes an evacuation plan



LQG Requirements (cont.)

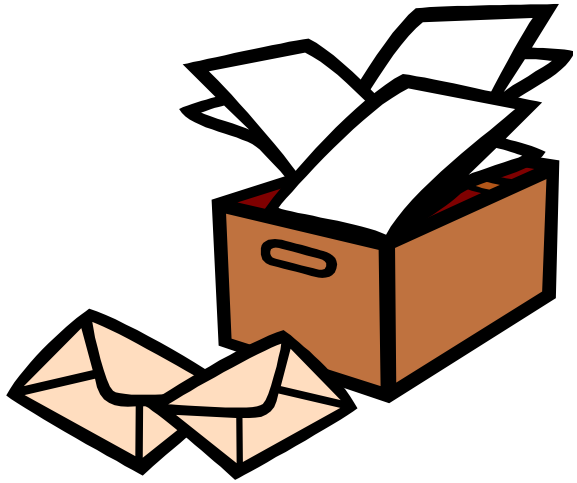
- Employees must be trained on proper handling of hazardous waste (40 CFR 265.16)
  - Trainer must be trained on hazardous waste management procedures
  - Must ensure personnel are able to effectively respond to emergencies
  - Training must be completed w/in 6 months of employment
  - Annual refresher training required

LQG Requirements (cont.)

- Training records retention (40 CFR 265.16(d) & (e))
  - Job title for each hazardous waste position
  - Name of employee filling each hazardous waste position
  - Written job description for each position
  - Written description of each type of training
  - Amount of each type of training
  - Documentation of training and refreshers
  - Training records of current employees kept until facility is closed and 3 years for those who have left

LQG Requirements (cont.)

- Complete exception reports for manifests not returned by TSD
- Submit Biennial Hazardous Waste Report (aka BRS) to the State



SQG Requirements

Are the same with some exceptions:

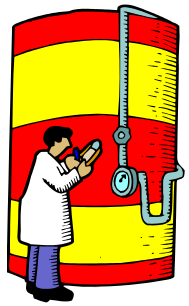
- Small quantity generator must never accumulate > 6,000 kg of hazardous waste
- Facility can store hazardous waste for:
  - Up to 180 days (40 CFR 262.34(d)), or
  - Up to 270 days if disposal facility > 200 miles away (40 CFR 262.34(e))

SQG Requirements (cont.)

- Instead of a contingency plan:
  - Must have emergency coordinator on site or on call at all times (40 CFR 262.34(d))
  - Post emergency information by the telephone (40 CFR 262.34(d)), including location of emergency equipment and telephone number of the fire department
- Instead of training requirements/plan:
  - Ensure all employees are familiar with proper waste handing and emergency procedures (40 CFR 262.34(d)(5)(iii)

SQG Requirements (cont.)

- Reduced requirements for hazardous waste storage tanks according to 40 CFR 265.201, for example:
  - Inspection requirements (daily or weekly, depending)
  - Secondary containment or freeboard requirements
  - Wastes must be “compatible” with tank



Common Generator Violations

- Failure to conduct hazardous waste determination
- Storage over allowable time limits
- Failure to label and date containers
- Failure to close containers
- Failure to train employees in hazardous waste management and keep training records

Common Generator Violations(cont.)

- Failure to conduct weekly inspections of your storage or accumulation area
- Containers in poor condition
  - Dented or rusted containers
- Failure to minimize the possibility of a release
- Inadequate aisle space

Generator Violations

- Illegal disposal (SWDA 3005; 40 CFR 270.1c)
  - Failing to clean up releases or drippage
- Incompatible storage (40 CFR 265.17)
  - storing acids next to solvent wastes
- Failure to notify EPA of your hazardous waste generation or obtain an EPA ID number
- Manifests (40 CFR 262 Subpart B)
  - Incomplete information on forms
  - Failure to use manifests

Generator Violations (cont.)

- Taking waste from one facility to another offsite facility (even if owned by the same company) without a manifest
- Using a transporter that does not have an EPA ID Number

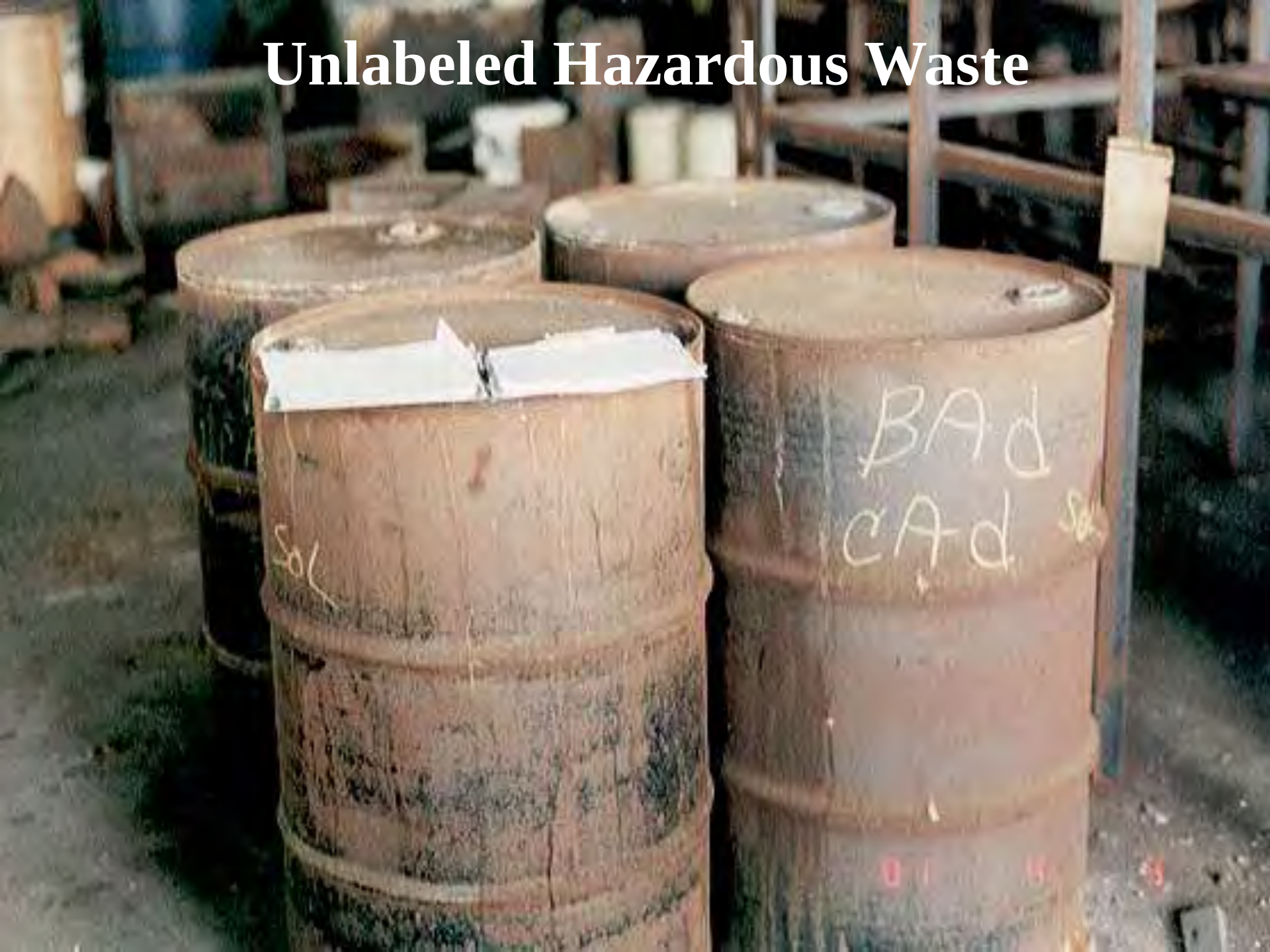
Other Concerns at Metal Finishing Facilities

- Poor housekeeping
- Products stored in a “waste-like” manner (may be considered wastes)
- Unknown chemicals in storage (may be considered wastes)
- Poor building condition and/or maintenance

Common Violations

Actual inspection photos

Unlabeled Hazardous Waste



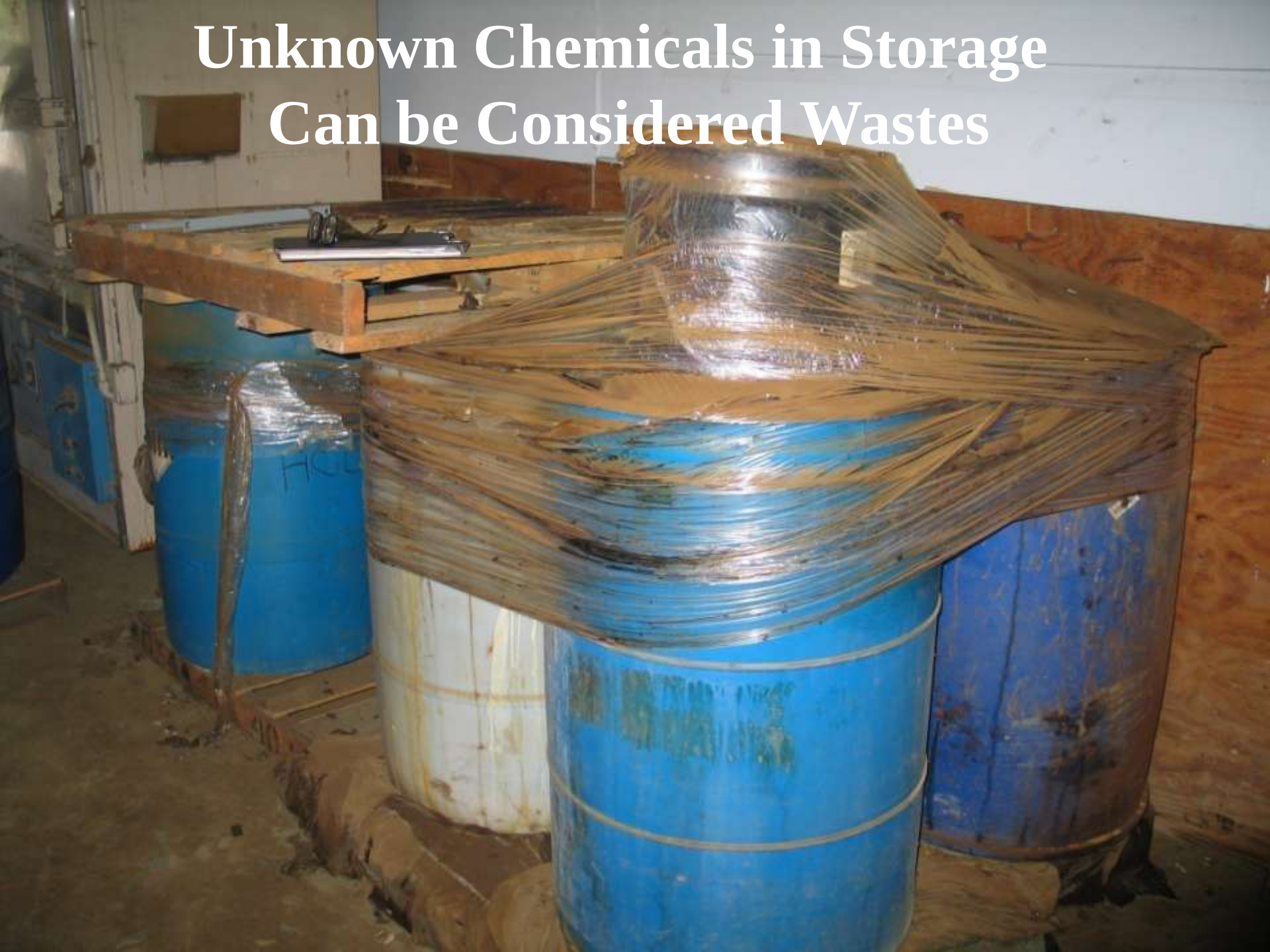
Open & Unlabeled Hazardous Waste Container


Spent Filters in an unlabeled &
open container


Open & unlabeled container of chrome sludge

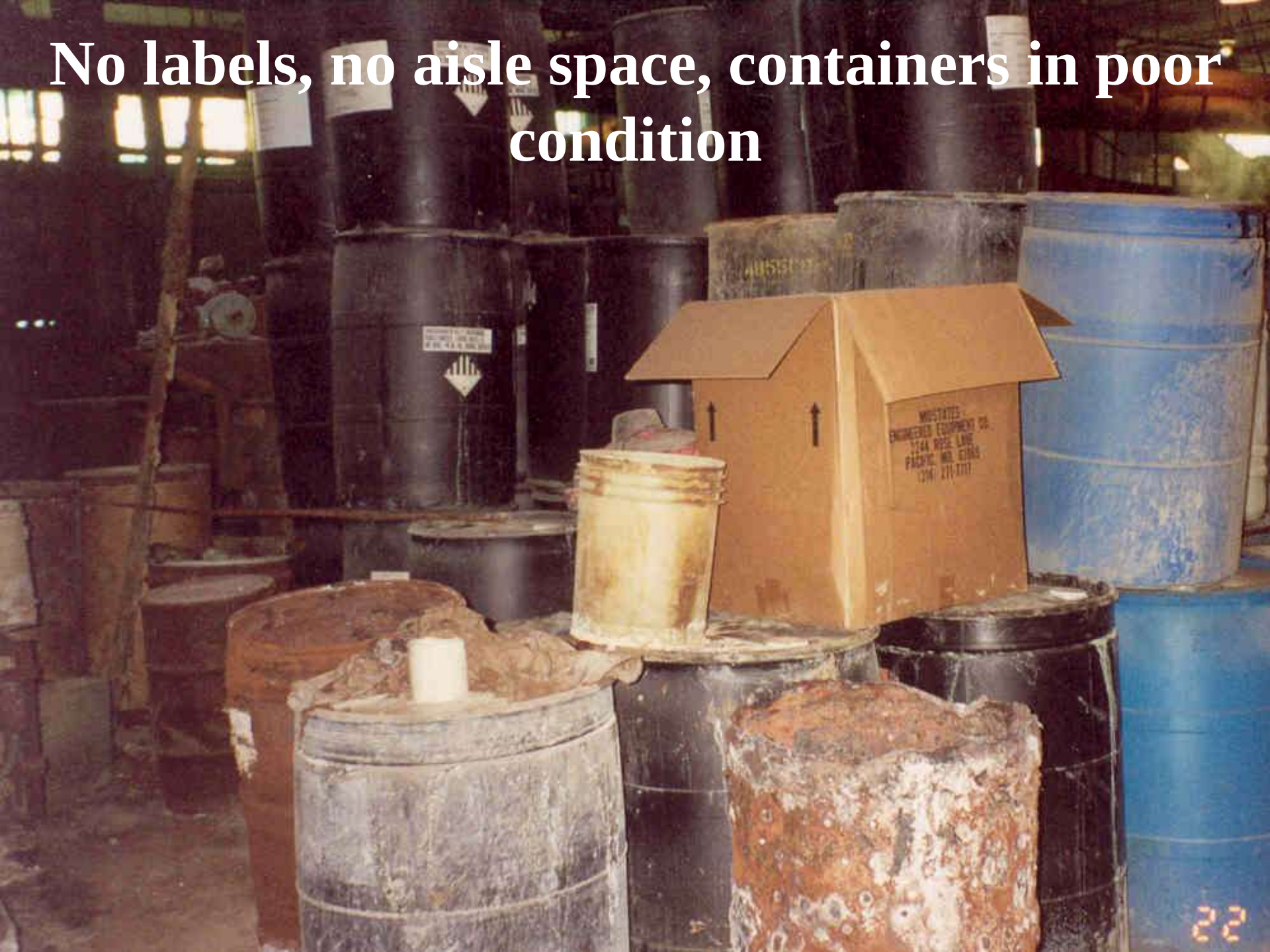
Open & unlabeled filter cake

Unknown Chemicals in Storage Can be Considered Wastes



Container in Poor Condition

No labels, no aisle space, containers in poor condition



Lack of Aisle Space


Incompatible Storage
F007
NH_4OH
Caustic Flakes
F006
Nickel Chloride
Sodium Cyanide
Nickel Strip
Nitric Acid
Muriatic Acid

Failure to maintain the facility to prevent releases


Polishing Dust (Hazardous Waste) On Floor
Failure to maintain the facility to prevent releases

Universal Waste (40 CFR 261.9 and 273)

- Universal wastes are hazardous wastes that have reduced regulatory requirements
  - Batteries (40 CFR 273.2)
  - Pesticides (40 CFR 273.3)
  - Thermostats (40 CFR 273.4)
  - Lamps (40 CFR 273.5)

Universal Waste-Lamps

- Fluorescent Tubes
- High-intensity Discharge Lamps
- Sodium Vapor Lamps
- Any Other Lamps With Mercury

Universal Wastes-Batteries

- Nickel-Cadmium
- Carbon Zinc
- Mercury Batteries
- Most Alkaline Batteries
- Lead-Acid Car Batteries Can Be Universal Wastes, or be regulated under Part 266

How Are Universal Wastes Different From Other Haz Wastes?

- Can Be Stored For Up To One Year
- No Manifests Required
- Fewer Labeling Requirements
  - “Universal Wastes-***” (Lamps, Batteries, etc.)
- Must Be Stored In Structurally Sound, Closed Containers

Universal Waste

Common Violations

Actual inspection photos

Fluorescent Lamps In Open Containers, Not Labeled

Unlabeled Fluorescent Lamps In Open Container

Unlabeled universal waste batteries

Treatment, Storage, & Disposal

- Generators may not store hazardous waste for longer than is allowed
- Federally, generators are allowed to conduct limited types of treatment in containers or tanks
- Any facility, SQG or LQG, should ensure a permit is not required prior to treating or disposing of hazardous waste
  - For example, in California, generators need permits or authorization for certain types of treatment that the federal regulations allow

Land Disposal Restrictions (40 CFR 268)

- Generators must comply with 40 CFR 268.7(a) (5)
- Wastes must meet LDR treatment standards prior to land disposal
- LDR establishes treatment standards for each hazardous waste code
- Applies to anyone whose waste will be disposed of in land disposal units
- Treatment is required prior to disposal (40 CFR 268, Subpart D)
- Dilution is prohibited as a substitute for treatment
- LDR notifications are required

EPA INSPECTION PROCEDURES – what does the inspector do?

- Drive by and around facility property
- Enter the facility
- Ask for facility owner and/or representative
- Show EPA credentials
- Discuss authority, process, Confidential Business Information procedures

EPA INSPECTION PROCEDURES

- Will ask questions about facility processes and wastes generated
- Will ask to see waste determination info
- Will conduct a walk-through the facility (visual inspection) and document any violations noted during the walk-through; photos may be taken

EPA INSPECTION PROCEDURES

- Will ask to see the following:
  - Manifests and Land Disposal Restriction Notices
  - The facility's contingency plan (LQG's only)
  - A training plan and training records (LQGs)
  - Documentation or records for any new waste streams observed during the facility tour
- Will conduct exit interview - discuss any violations or concerns noted during the inspection and answer any questions
- Will complete paperwork and exit the facility

What To Do During an Inspection

- Don’t deny the inspector access to your facility
- Cooperate with the inspector
- Always tell the truth. If you don’t know the answer to a question, say so - don’t make up an answer
- Provide accurate and factual information
- Provide copies of any documents requested by the inspector
- Feel free to contact your consultant if you have one if you wish
- Ask any questions you might have

What To Do Post Inspection

- If violations were determined, either during or after the inspection, do the following:
  - Correct all deficiencies as quickly as possible
  - Promptly reply with a letter (or e-mail) to the EPA Enforcement Officer that describes the actions you took or will take to correct the deficiencies
  - If you can't correct the deficiencies or return to compliance in a timely manner, send the Enforcement Officer a schedule as to when you will have all deficiencies corrected
  - Always send the Enforcement Officer documentation that you corrected all deficiencies
  - Feel free to call or e-mail if you have questions

Metal finishers in California should be aware that state regulations are more stringent than the federal regulations

- DTSC Regulatory Assistance: http://www.dtsc.ca.gov/ContactDTSC/Regulatory-Assistance-Officers.cfm or 800-728-6942

- http://www.dtsc.ca.gov/HazardousWaste/upload/WetFloors_Electroplating_Guidance20101.pdf
- http://www.dtsc.ca.gov/HazardousWaste/upload/Electroplating_Manual2009.pdf

Other State Compliance Resources

- Arizona - http://www.azdeq.gov/function/assistance/comp.html
- Nevada - http://ndep.nv.gov/bwm/hazard.htm
- Hawaii – http://hawaii.gov/health/environmental/compliance

Another Resource

- National Metal Finishing Resource Center - http://www.nmfrc.org/