III. Waste Management Laws, Regulations & Reports

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Introduction and Overview

- Why should you care?
- Hazardous waste regulations
- Purpose of the regulations
- Identification and classification of wastes
- Typical foundry waste sources
- Hazardous waste generator requirements
- Emergency Response requirements
- Training requirements
- Solid waste requirements
- Universal and Radioactive wastes, PCBs and used oil
- Waste permits
- Transportation of wastes
- Recordkeeping and reporting
- Non-compliance penalties
Why should you care?

• Requirements for proper handling and disposal protect you and the environment you live in

• Unregulated past practices have already caused a lot of contamination

• 1,300 Superfund Sites (most recent is 2013 former smelter), on-site illegal disposal cases (Wal-mart), and illegal disposal by waste management companies

• Your company’s future success depends on complete compliance with all regulations
Waste Laws and Regulations

• Federal Regulations
  – Solid Waste Disposal Act – 1965
  – Hazardous and Solid Waste Amendments – 1984
• Collectively Known as RCRA
• RCRA regulations – Hazardous Waste
• State-by-State – Other wastes
• State regulations may impose additional requirements for all types of waste
Purpose of the Regulations

• To monitor hazardous wastes from the “cradle to the grave”, from generation to disposal

• As a result of this monitoring function, human health and the environment are protected from the time it is generated until final disposal of ALL of the waste
**Purpose of the Regulations**

- “Cradle to the Grave” Example

  - Oily Wastewater at Foundry
    - Waste Treatment Facility
      - Reclaimed Oil
      - Treated Wastewater
        - Sanitary Sewer? Shipped Off-site?
      - Sludges
        - Landfill?
        - Shipped Off-site?
Identification and Classification of Wastes

• Is it a solid waste?
  – Definition of Solid Waste (DSW)
  – Lots of details in the rule
  – plus, Ongoing rulemaking for redefinition

• If it is a solid waste, is it a Hazardous Waste?
Identification and Classification of Wastes

Listed/Characteristic

Yes → Exit to Non-HW site

Ingredients/substitutes

No

Specific exclusions

Yes → Solid waste even when used/reused

No → Discarded

Discarded

No

Military munitions

No → Inherently waste-like

Yes

Inherently waste-like

No → Abandoned

Abandoned

Recycled

No

Use constituting disposal

No → Burning for energy recovery

Yes

Burning for energy recovery

No → Accumulated speculatively

Yes

Accumulated speculatively

No → Reclaimed

Reclaimed

Excluded material/process

Yes → Not a solid waste

No → Solid waste
Identification and Classification of Wastes

Directly using or reusing a material:

• As an ingredient in process
• As substitute for commercial product
• In original process
Identification and Classification of Wastes

Still Solid Waste when used/reused if:

- Inherently waste-like
- Used in a manner constituting disposal
- Burned for energy recovery, used in fuels, or
- Materials accumulated speculatively
Identification and Classification of Wastes

There are 25 exclusions:

40 CFR 261.4(a)
8, 13, 20, 23, 24, 25:

- Scrap metal
- Reclaimed on-site
- Reclaimed off-site
Identification and Classification of Wastes

- It is a solid waste
- Is it a hazardous waste?
- Hazardous waste
  - Lists – if the waste is on the list, it is a hazardous waste
    - Examples: certain types of degreasing solvents, some electroplating sludges
  - Characteristics – if the waste exhibits one of the following characteristics
    - Ignitability (flash point <140 F)
    - Corrosivity (pH <2 or >12.5)
    - Reactivity
    - Toxicity
Waste Classification (cont’d)

• Just because it is not hazardous waste doesn’t mean it is not regulated, it is just regulated differently

• Testing to determine if waste is hazardous
  – Generator knowledge (MSDS and knowledge of process)
  – Toxicity Characteristic Leaching Procedure (TCLP)
  – Other tests as required by your state
Iron Foundry Process Flow
Sources of Emissions

- Metal Melting
- Gas and Particulate Emissions
- Cupola
- Ductile Iron Innoculation
- Return Sand
- Dust and Gases
- Core Sand and Binder
- Core Making
- Cores
- Baking
- Pouring
- Casting Shakeout
- Cooling and Cleaning
- Shipping
- Dust
- Dust
- Finishing
- Sand Preparation
- Induction
- Electric Arc
- Gases
- Fluxes
- Coke
- Metallics
Typical Foundry Waste Sources

- First look at your shops
  - Melting
  - Sand system/molding/excess system sand
  - Core Making
  - Core knock out or sand removal
  - Cleaning room (chipping and grinding)
  - Painting
  - Maintenance
  - Laboratories
  - Air Pollution Control Equipment
**Typical Foundry Waste Sources**

- Green Sand
- Core sand (core butts – different resins, unusable core sand containing resin)
- Baghouse dusts (must classify each separately)
- Scrubber water (cupola scrubber water, core resin catalyst scrubber water)
- Universal wastes (fluorescent light bulbs, batteries, mercury containing equipment)
- Used oil (not regulated as waste if recycled)
- Used oil filters
- Used lead acid batteries
**Typical Foundry Waste Sources (cont’d)**

- Grinding dust
- Core wash
- Slag
- Unusable shot bead
- Empty containers (must make sure they are really empty)
- Any spill cleanup materials
- Rags
- Wastes from ancillary processes that are not directly connected to metal casting
- Catch basins/cleanout traps
- Sweeper/sweep dust
- WWTP sludge and wastes, including discharge water
**Hazardous Waste Generators**

- **Large Quantity Generator (LQG)**
  - >2,200 lb/month
  - (>2.2 lb/month acute)

- **Small Quantity Generator (SQG)**
  - 220 - 2,200 lb/month
  - (<2.2 lb/month acute)

- **Conditionally Exempt SQG (CESQG)**
  - < 220 lb/month
  - (<2.2 lb/month acute)

**Acute Hazardous Waste is:**
- No D, K or U codes
- Some F codes
- Most P codes

**lb/month is:**
- Time of generation not when you ship
## Generator Requirements

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Typical HW Generation

Collect HW in a production area

“SATELLITE ACCUMULATION”

Store HW drums for pick-up

“STORAGE AREA”

AFS - Foundry Environmental 101
Storage and Accumulation

Satellite Area

- Must be near point of generation
- Max. of 55 gallons
- Label as Haz Waste (not yellow label)
- Label with HMIS
- Move within 3 days to storage area

Storage Area

- Yellow label immediately with date
- Inspect weekly and document
- Dispose in 90 days (180 days for SQG)
- Develop inventory control system and control it
Hazardous Waste Labeling

Place on drum when in satellite accumulation area

Place on drum when moved to storage area

Place while making determination

AFS - Foundry Environmental 101
Containers

- Keep closed at all times
- Compatible with waste
- “Empty” only if less than 1” residue
- Inspect Storage Area Weekly
- Provide secondary containment
- Air emission requirements
- Additional requirements for tanks
Emergency Response

• Preparedness and Prevention
  – General Standards
  – LQG and SQG (recommended for CESQG)

• Contingency Plan
  – Written Plan
  – LQG only
Preparedness and Prevention

• Emergency Coordinator
• Safety equipment
  – alarm, telephone, fire extinguisher/sprinkler, spill control and decontamination, test equipment
• Alarm system
  – whenever HW is handled must have immediate access
• Access and Aisle space
  – 2 drums wide x 2 drums high, 2.5 feet aisle
  – no prohibition on locking areas
• Local Authorities
  – Document correspondence
  – police, fire, emergency response, hospital
Contingency Plan
(written plan)

- How will you respond to fire, explosion, release?
- SPCC may suffice
- List names, phone numbers of internal and external
- up-to-date list of equipment
- evacuation plan and signals
- submit to police, fire, hospital and State and Local
  Emergency Response Agencies
- know the RQ’s for your wastes
Training - 40 CFR 265.16

• Who?
  – Anyone routinely handling HW (prod, maint, shipping)

• What?
  – Proper handling / labeling
  – Hazards
  – Emergency Procedures

• When?
  – 6 months after assigned
  – annual refresher

• Documentation
Training-40 CFR 265.16

• Documentation
  – Must list all positions requiring hazardous waste training
  – Must include job description for each position listed.

• DOT Training – may be required if you package and prepare your own hazardous waste for shipment; also if you offer hazardous materials from your facility onto public roads.
Waste Minimization

- LQG and SQG must make a good-faith effort to produce as little of it as possible.
- Companies are required to find ways to reduce the amounts of hazardous waste they produce.
- Waste minimization: any source reduction or recycling activity that results in either reduction of the total volume of the waste, reduction of the toxicity of the waste, or both.
Waste Minimization (cont’d.)

- LQG’s Certify on each manifest to having a program in place
- Program elements document
  - Top management support / coordinator / teams
  - Identify opportunities
  - Quantifiable goals
  - Periodic assessments / Annual report
HW Treatment and Disposal

- Most treatment and disposal will occur off-site
- Most hazardous wastes have specific treatment requirements
- Generator treatment on-site
- Rejected loads
- Sewer Disposal
Non-hazardous / Special Waste

- Much less cumbersome
- State-to-State differences (no federal program)
- Prove it is not hazardous waste
- Management standards by waste type
  - e.g. non-haz industrial (sand), asbestos, absorbents, medical, C/D, tires, ash, vegetation
- Storage limits
**Universal Wastes**

- Universal waste regulation passed to encourage businesses to recycle certain types of wastes that are generated in large volumes (by excluding them from the hazardous waste regulations).

- Most states have adopted this regulation as their own.

- Batteries, pesticides, Hg-containing equipment, fluorescent bulbs.
Universal Waste (cont’d.)

- Must send to recycler (otherwise HW)
- LQ or SQ handler
  - Threshold is 11,000 lbs accumulated
  - LQ get ID #
- Other Standards
  - store to prevent leaks and breakage
  - label - waste specific
  - accumulate up to 1 year
  - employee training
  - contain releases and treat as HW
PCB Wastes

- Transformers, capacitors, soil or absorbents
- Test or assume >50 ppm PCB
- Store up to 1 year after out-of-service
- Manifest
- No Generator ID#
Radioactive Waste

- Certain sands may read radioactive
- Rejected load at landfill
- Specific exemption in some states
- Special arrangements
Used Oil

- EPA rule (some states add other req.s)
- Label as “used oil” (including fill pipes)
- Exempt if burned in small heaters or mixed with diesel for vehicles
- Must be <1,000 ppm halogens
- Off-site reprocessing or burn for energy recovery
- filters and absorbents
- e.g. extra state rules
  - storage limits, property line, secondary containment
Waste Permits

• Generators of regular solid waste – no permits required
• Generators of hazardous waste
  – Do not need permits, but must file a “Notification of Regulated Activity” and receive an EPA Identification Number
  – Number is applied to the location, not the owner of the business
  – Give yourself at least 3 months for this
  – Does not need renewal, but may require updates if your waste streams change
Waste Permits

- Permits are required to treat and dispose of hazardous waste – make sure the waste management company that takes your waste has appropriate permits

- If you treat and/or dispose of hazardous waste, you must obtain permits from the state or federal agency
Transportation of Hazardous Waste

- You must use a licensed hazardous waste transporter to take your waste to a disposal facility.

- All containers must be labeled with a hazardous waste label that is filled out with the right information (generator name and address, waste identification, waste code, etc.).

- Must complete a hazardous waste manifest that accompanies the shipment to the disposal facility, and turn in copies to the state agency.
Recordkeeping and Reporting

- **Solid Waste**
  - Keep all work orders, bills of lading and analyses for 3 years (good work practice)
  - Good advice: keep your waste identification sheet in a binder with a waste determination statement and all analytical data supporting that determination, including MSDS.
Recordkeeping and Reporting (cont’d.)

• Hazardous Waste
  – Manifests – must accompany each load of hazardous waste that leaves your facility
    • Keep original copy and the signed copy you receive from the disposal facility
  – Biennial reports
    • Due March 1 of each even numbered year
    • Documents all off-site shipments to disposal sites
    • Covers generating activities for the previous year
  – Records of analysis or other waste determination – retain for three (3) years
“Top Ten” Waste Inspection Violations

• 10. Satellite Areas
• 9. Labeling
• 8. Storage limits
• 7. Closed containers
• 6. Generator Classification
• 5. No return manifests
• 4. Inadequate spill equipment
• 3. No contingency plan
• 2. No local authority notification
• 1. Improper waste determination
What happens if you don’t comply

• We harm our environment - where we live, and our kids live, breathe, drink water.

• Administrative Penalties (fines) - up to $25,000 per day per violation.

• Civil Penalties - lawsuits against individuals who fail to comply with a regulation.
What happens if you don’t comply

- Criminal penalties - jail time and fines if you knowingly:
  - transport waste to a non-permitted facility
  - treat, store, or dispose of waste without a permit
  - omit or falsify information on any compliance document
  - do not comply with recordkeeping and reporting requirements
  - transport hazardous waste without a manifest
  - export waste without the consent of the receiving county
  - perform any action resulting in imminent danger
Call or talk to any of your Env 101 instructors if you have any questions or concerns about this training information

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