Hazardous Waste Determination for Metal Finishers

Lucille C. Servidio, CHMM, TURP
Capaccio Environmental Engineering, Inc.
Why Are We Here?

- Clarify HW Determination Issues
- Promote Discussion on “HOT” Wastes
- Provide a Forum to Present Questions To Regulatory Agencies
Topics of Discussion

✓ Why is HW Determination Important?
✓ What is a HW?
✓ Specific Metal Finishing Hazardous Wastes
Why is HW Determination Important?

♫ Required by 310 CMR 30.302
♫ Determines HW Generator Status
  – LQG >1000 kg/month (2200 lbs/month)
    • Acute HW > 1 kg/month
  – SQG 100-1000 kg/month(220-2200lbs/month)
    • Acute HW < 1 kg/month
  – VSQG <100 kg/month (<220 lbs/month)
♫ Designates level of regulatory requirements
♫ Ensures Proper HW Management
Hazardous Waste Generator Requirements (310 CMR 30.301)

- Determine if your wastes are hazardous
  - Based on knowledge or analysis
- Determine what generator status: LQG, SQG, VSQG
- Register with EPA/DEP, obtain ID Number
- Accumulate and store waste properly
- Ship wastes for off-site disposal using a licensed transporter and permitted TSDF
- Have procedures for emergencies
- Keep records that demonstrate compliance
  - Waste analysis and/or logic for why non-hazardous
What is a Hazardous Waste?
(310 CMR 30.010)

- A waste or combination of wastes which because of
- Quantity, concentration, or physical, chemical or infectious characteristics
- May cause serious, irreversible hazard to human health and the environment
Listed Wastes
310 CMR 30.131 - 30.136

✓ **F List** - Non Specific Sources
  (solvents, electroplating baths with cyanides)

✓ **K List** - Specific Sources
  (wood preserving wastes)

✓ **U List** - Discarded, Off-Spec Spill Residue
  (off-spec acetone)

✓ **P List** - Acutely Hazardous, Discarded, Off-Spec Spill Residue (cyanides)
Characteristic Wastes
(310 CMR 30.122 - 30.125)

Ignitable (D001)  
(FP <140° F)

Corrosive (D002)  
(pH ≤2 or ≥12.5)

Reactive (D003)  
(reacts w/ H₂O, gases)

Toxic (D004-D043)  
[Test for metals and organics using Toxicity Characteristic Leaching Procedure (TCLP)]
Toxicity Characteristic Leaching Procedure (TCLP) Metals
(310 CMR 30.155B)

- ✔ D004 Arsenic (5mg/l)
- ✔ D005 Barium (100mg/l)
- ✔ D006 Cadmium (1mg/l)
- ✔ D007 Chromium (5mg/l)
- ✔ D008 Lead (5mg/l)
- ✔ D009 Mercury (0.2mg/l)
- ✔ D010 Selenium (1mg/l)
- ✔ D011 Silver (5mg/l)
Mixture Rule
(310 CMR 30.140)

✔ Mixture of a listed hazardous waste and non-listed hazardous waste generates a listed hazardous waste.

✔ Mixture of a characteristic waste and a non-listed hazardous waste only generates a hazardous waste if the waste exhibits a characteristic.
When Is A Container Empty?

- Pump, pour, scrape everything possible out of the container
- Non-acutely HW = < 1 inch of residue
- Acutely HW = triple rinsing
- Gases = pressure inside container equals atmospheric pressure
Hazardous Wastes Treated in Pretreatment WWT Systems

✅ Count towards HW Generator Status

✅ Treatment exempt from licensing however, must comply with 310 CMR 30.605

✅ Memo between DEP and MWRA allows for treatment of non hard-piped hazardous wastes in on-site treatment under special conditions

✅ May be expanded to other POTW districts by 2000
Class A Regulated Recyclable Materials

✓ Scrap metal
✓ Sludge w/characteristics when reclaimed
✓ Byproduct w/characteristics when reclaimed
✓ Commercial chemical product when reclaimed (30.133-136)
✓ Waste Oil characteristic reclaimed other than burning for energy recovery
✓ Wastes recycled in totally enclosed units
Metal Fabrication

✔ Scrap Metal -
  - Oily film on metal scrap not MA01
✔ Metal Dust- TCLP
✔ Waste Oil - MA01
✔ Cutting Oil-MA01
Metal Preparation

✓ Cleaning Baths - D002 (Corrosive)
✓ Vapor Degreasing-F002 (Solvents)
✓ Deburring - TCLP Metals
✓ Tumbling - TCLP Metals
✓ TimeSaver Waste - MA01
✓ Oily Rinse Water - MA01
# Metal Finishing Electroplating

- ✔ Spent cyanide plating baths - F007
- ✔ Sludges /residues cyanide plating - F008
- ✔ Spent stripping/cleaning (cyanides) - F009
- ✔ Spent cyanide salts (heat treating) - F011
- ✔ Acids/Alkalis - D002 (Corrosive/TCLP)
- ✔ Reactive Wastes (cyanides) - D003
- ✔ Process baths filters - Listed or Test TCLP
- ✔ Non-cyanide Electroplating Baths and Rinse waters not “F” listed - Test TCLP,pH
Metal Finishing
Anodizing

✔️ Not “F” listed if no cyanides used
✔️ Soak Cleans -D002 (Corrosive)
✔️ Rinse Water
  – D002 (Corrosive)
  – TCLP Metals
Metal Finishing
Chemical Conversion Coating

- ✔ Hexavalent Chromium Baths- D007
- ✔ Passivation with Nitric Acid-D002
- ✔ Rinse waters
  - D002 (Corrosive)
  - D007 (TCLP Hexavalent Chromium)
Metal Finishing Painting

- ✔ Solvent Paints - F001, F003, F004, F005 (Toluene, MEK, MIBK)
- ✔ Aqueous Paints - In general, non-hazardous waste but can not go in dumpster
- ✔ Powder Coatings - D005 (TCLP Barium)
- ✔ Paint Filters - TCLP Metals
- ✔ Rags - Policy BWP-94-015
- ✔ Petroleum Distillates - D001 (Ignitable)
Silk Screening

- Solvents- F001, F003, F004, F005
- Screen Inks- D001 (Ignitable)
Dark Room

✅ Fixers- D011 (TCLP silver)
✅ Developers -MA99 (usually non-hazardous if not mixed with fixer)
Maintenance Shop

- ✔️ Waste Oil- MA01
- ✔️ Waste Oily Rags-Policy
- ✔️ Petroleum Distillates- D001
Wastewater Treatment Sludge (F006)

Wastewater treatment sludge from electroplating operations except:

- sulfuric acid anodizing of aluminum
- tin plating on carbon steel
- zinc plating (segregated) on carbon steel
- aluminum or zinc plating on carbon steel
- cleaning/stripping associated with tin, zinc, aluminum plating on carbon steel
- chemical etching and milling of aluminum
Wastewater Treatment Sludge (F019)

✓ Wastewater treatment sludge from chemical conversion coating on aluminum
Derived From Wastes

✔ Wastes which are derived from the treatment of Listed Wastes are also Listed!

✔ Filters in WWT system
What’s New?

Proposed Rule: 180- Day Accumulation Time for Sludges from the Metal Finishing Industry

EPA is proposing to allow generators of F006 waste extended accumulation time

✔ Allows 180 days of accumulation (270 if applicable) without a hazardous waste storage permit

✔ Designed to provide incentive to choose metal recovery vs. treatment & disposal by removing economic barriers.
Universal Wastes

✓ What are Universal Wastes?
  - Batteries
  - Pesticides
  - Thermostats
  - Mercury-containing devices and lamps
Summary

✅ As the generator you are responsible to know if your waste is hazardous!

✅ You can base this determination on knowledge of the process or analysis

✅ Review Lists (310 CMR 30.131 -30.136)

✅ Test for Characteristics (310 CMR 30.122-30.125)
  - Use a certified laboratory

✅ Document your determination, keep on file
Next Steps

✔ List your wastes and indicate if and why they are hazardous

✔ Check to make sure your generator status is correct, if not notify DEP with a “Change of Status” Form

✔ As Always, if possible implement P2 Plan!

✔ Implement a HW Management Plan appropriate to generator status
The End

Thanks for your interest!