Air and Waste Management
Iowa Chapter Workshop
Des Moines, Iowa

RCRA Basics

July 8, 2015
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WORD GAME

PARKED/PARKED
WORD GAME

GUN, JR.
WORD GAME

CHECK
CHECK CHECK CHECK
Purpose of the Presentation

• Provide a very basic overview of RCRA Subtitle C (Hazardous waste program)
• Provide information on how facilities should complete waste determinations
• Provide information on common RCRA violations
• Provide information on hazardous waste reduction strategies
Purpose of the Presentation

• Provide a discussion on the Contaminated-Solvent Wipe Rule
• Provide a discussion on upcoming rule changes in RCRA
Purpose of the Presentation

- This presentation is not intended to provide every RCRA requirement
- The facilities are responsible to ensure that their waste management is in compliance with RCRA!
RCRA is not easy!

Sometimes the requirements are not obvious!

“Oh, wait! Wait, Cory! ... Add the cereal first and then the milk!”
As of 2004, EPA had on record more than:

- 1,070 operating TSDs
- 18,250 transporters
- 383,000 generators

Region 7's share of the universe:

- 62 operating TSDs
- 612 transporters
- 18,564 generators
The Waste Identification and/or Determination
What is the #1 RCRA Violation?

• 40 CFR 262.11 – Failure to conduct a waste determination!
• Also, failure to make an adequate waste determination.
Waste Universe

Solid Waste

Not Waste!

Haz. Waste
Fundamental Questions

- Do I generate solid wastes?
- Are the solid wastes I generate hazardous wastes?
- How should I manage my solid and hazardous wastes?
EVERYONE who generates a waste must make hazardous waste determination(s) to know how their waste(s) might be regulated unless explicitly excluded from the hazardous waste rules.
As per 40 CFR 261.2(a)(1):

A *Solid Waste* is any discarded material that is not excluded (by 40 CFR 261.4(a) or under the variances from classification as a solid waste for recycled materials as described at 40 CFR 260.30 and 40 CFR 260.31).
Is The Material Discarded?

As per 261.2(a)2 a *discarded* material is any material which is:

- abandoned
- recycled
- inherently waste-like
Is The Material Discarded by Being Recycled??

As per 40 CFR 261.2(b):

- Materials are solid waste if they are abandoned by being:
  - disposed
  - burned or incinerated
  - accumulated, stored or treated (but not recycled) or, in lieu of being abandoned by being disposed of, burned, or incinerated
Is The Material Discarded by Being Recycled??

As per 40 CFR 261.2(c):

• Materials are solid waste if they are recycled—or accumulated, stored, or treated before recycling—by being:
  • used in a manner constituting disposal
  • burned for energy recovery
  • accumulated speculatively
Is The Material Discarded by Being Recycled??

As per 40 CFR 261.2(c):

- Materials are solid waste if they are recycled—or accumulated, stored, or treated before recycling—by being:
  - reclaimed
Is The Material Discarded by Being Recycled??

As per 40 CFR 261.2(c):

- Materials are solid waste if they are inherently waste-like:
  - Hazardous waste numbers F020 thru F023, F026, and F028
  - Secondary materials fed to a halogen acid furnace that are characteristic or listed hazardous wastes
  - Materials meeting criteria established by EPA
Is The Material Exempt by Being Recycled??

As per 40 CFR 261.2(e)(1):

• Materials are **not solid waste** if they are **recycled** by being:
  • used or reused as ingredients in an industrial process to make a product, provided that the materials are not being reclaimed
Is The Material Exempt by Being Recycled??

As per 40 CFR 261.2(e)(I):
• Materials are *not* solid waste if they are *recycled* by being:
  • Returned to the original process from which they are generated, without first being reclaimed or land disposed.
Is The Material Exempt by Being Recycled??

As per 40 CFR 261.2(e)(2):

• Materials remain solid waste when *recycled* by being used, reused, or returned to original process if the recycling includes:
  • Used in a manner constituting disposal, or used to produce products that are applied to the land
Is The Material Not Exempt by Being Recycled?

As per 40 CFR 261.2(e)(2) (continued):

- Burned for energy recovery, used to produce a fuel, or contained in fuels
- Inherently waste-like
- Speculative accumulation
Solid Waste Exclusions

- Is your waste excluded according to 40 CFR 261.4?
  - wastes not meeting regulatory definition of “solid waste”
  - domestic sewage & wastes going to treatment plants
  - NPDES-permitted industrial wastewater discharges
  - household waste (residences, motels, campgrounds, etc.)
Solid Waste Exclusions

• Is your waste excluded according to 40 CFR 261.4?
  • agricultural waste used as fertilizer
  • certain production wastes (mining, petroleum, mfg. processes)
  • certain arsenical-treated wood wastes
  • petroleum contaminated media & debris from underground storage tank remediation (40 CFR 280)
Solid Waste Exclusions

• Is your waste excluded according to 40 CFR 261.4?
  • non-terned plated used oil filters that have been properly drained
  • certain other specific types of wastes
Hazardous Waste

- Two broad categories:
  - **RCRA Characteristic Wastes** – Ignitable, Corrosive, Reactive, and Toxic as defined at 40 CFR 261 Subpart C
  - **RCRA Listed Hazardous Wastes** – F, K, P, and U-listed hazardous wastes as defined at 40 CFR 261 Subpart D
Ignitable Characteristic

• D001 characteristic waste code
• A liquid waste having a flash point less than 140°F (60°C)
• An oxidizer or ignitable compressed gas (DOT defined)
• “spontaneously combustible” materials
Corrosive Characteristic

- D002 characteristic waste code
- A liquid waste with a pH less than or equal to 2.0 (acidic)
- A liquid waste with pH equal to or greater than 12.5 (alkaline)
- A liquid waste that corrodes steel at rate greater than 0.25 in./yr.
Reactive Characteristic

- D003 characteristic waste code
- Includes wastes that are:
  - unstable or explode
  - produce noxious fumes, gases, or vapors when mixed with water or under conditions such as heat or pressure.
Toxic Characteristic

• D004 through D043 characteristic waste codes
• Wastes determined by laboratory analysis (TCLP, or Toxicity Characteristic Leaching Procedure) to contain any of 40 specified constituents above threshold concentrations listed in 40 CFR 261.24
F-Listed

- Non-specific sources
- Fxxx listed waste codes
- Halogenated or non-halogenated solvents or solvent mixtures used in cleaning or degreasing and containing $\geq 10\%$ solvent constituent, before use.
K-Listed

• Specific sources
• Kxxx listed waste codes
• various types of treatment sludges
• certain distillation wastes
• specific types of manufacturing wastes
• discarded commercial chemical or off-specification product listed in 40 CFR 261.33
• container residues or spill cleanup waste from such products
• **Pxxx** listed waste codes for acute hazardous wastes
• **Uxxx** listed waste codes for non-acute hazardous wastes
Specially regulated categories of waste

- Universal Wastes
- Used Oil
- Reclaimed lead-acid batteries
Universal Waste

• Four specified categories of hazardous waste under the Universal Waste Rule (40 CFR 273):
  • Universal Waste—Batteries
  • Universal Waste—Pesticides
  • Universal Waste—Mercury Containing Equipment
  • Universal waste—Lamps
Universal Waste Advantage

- Less stringent management requirements than for fully regulated hazardous waste. Hazardous waste managed as Universal Waste is not counted toward total monthly hazardous waste generation rate.
Handling for reclamation by generators, transporters, collectors, storers, or regenerators is exempt from most hazardous waste requirements (40 CFR 266.80(a))
Generator Categories

- Non-handler of hazardous waste
- Conditionally-Exempt Small Quantity Generator (CESQG)
- Small Quantity Generator (SQG)
- Large Quantity Generator (LQG)
- Treatment, Storage, and Disposal Facility (TSDF)
<table>
<thead>
<tr>
<th>Requirements</th>
<th>CESQG</th>
<th>SQG</th>
<th>LQG</th>
</tr>
</thead>
<tbody>
<tr>
<td>HW Quantity Generated</td>
<td>( \leq 100 \text{ kg/month} )</td>
<td>( &gt; 100 \text{ kg/month} ) ( &lt; 1,000 \text{ kg/month} )</td>
<td>( \geq 1,000 \text{ kg/month} )</td>
</tr>
<tr>
<td>EPA ID #</td>
<td>Not required</td>
<td>Required</td>
<td>Required</td>
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<tr>
<td>HW Accumulated Quantity</td>
<td>( \leq 1,000 \text{ kg} ) ( \leq 1 \text{ kg acute} ) ( \leq 100 \text{ lbs. acute soil cleanup} )</td>
<td>( \leq 6,000 \text{ kg} )</td>
<td>No limit</td>
</tr>
<tr>
<td>Accumulation Time Limit</td>
<td>None</td>
<td>( \leq 180 \text{ days or} ) ( \leq 270 \text{ days} )</td>
<td>( \leq 90 \text{ days} )</td>
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<tr>
<td>Accumulation Requirements</td>
<td>None</td>
<td>Basic container and tank requirements</td>
<td>Full compliance for management of tanks, containers, drip pads, or containment buildings</td>
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<tr>
<td>Personnel Training</td>
<td>None</td>
<td>Basic Training</td>
<td>Documented Training</td>
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<tr>
<td>Contingency Plan and Emergency Procedures</td>
<td>None</td>
<td>Basic</td>
<td>Full plan required</td>
</tr>
<tr>
<td>Requirements</td>
<td>CESQG</td>
<td>SQG</td>
<td>LQG</td>
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<tr>
<td>Preparedness and Prevention</td>
<td>Not required</td>
<td>Required</td>
<td>Required</td>
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<td>Air Emissions</td>
<td>Not required</td>
<td>Not required</td>
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<td>Land Disposal Restrictions</td>
<td>Not required</td>
<td>Required</td>
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<td>Manifest</td>
<td>Not required</td>
<td>Required</td>
<td>Required</td>
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<tr>
<td>Waste Minimization</td>
<td>None</td>
<td>Good faith effort required</td>
<td>Program in place required</td>
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<tr>
<td>Pre-Transport Requirements</td>
<td>Yes (if required by DOT)</td>
<td>Required</td>
<td>Required</td>
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<td>Biennial Report</td>
<td>Not required</td>
<td>Not required</td>
<td>Required</td>
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<tr>
<td>Requirements</td>
<td>CESQG</td>
<td>SQG</td>
<td>LQG</td>
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<tr>
<td>Exception and Additional Reporting</td>
<td>Not required</td>
<td>Required</td>
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<tr>
<td>Recordkeeping</td>
<td>Not required</td>
<td>Required</td>
<td>Required</td>
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<tr>
<td>Facility Type (shipping wastes offsite)</td>
<td>As noted in §261.5(f)(3) and §261.5(g)(3)</td>
<td>RCRA permitted/interim status facility</td>
<td>RCRA permitted/interim status facility</td>
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<tr>
<td>Closure</td>
<td>Not required</td>
<td>Required (for some management units)</td>
<td>Required</td>
</tr>
</tbody>
</table>
Other RCRA Issues

- EPA Solvent-Contaminated Wipes Rule (a reduction of HW)
- Definition of Solid Waste (DSW) – signed December 10, 2014
- Waste Analysis at Facilities That Generate, Treat, Store, and Dispose of Hazardous Wastes - Final; A Guidance Manual – April 1, 2015
Common RCRA Violations
(observed during RCRA Inspections)
RCRA LIABILITY
When Does It Start,
When Does It End Or Does It?
Wastewater Treatment Sludge Requiring Waste Determination
Burning Diatomaceous Earth (DE) media at a landfill caused by spontaneous combustion.

Is this a RCRA D001 Characteristic Waste?
Burning Diatomaceous Earth (DE) media at a landfill caused by spontaneous combustion.

Is this a RCRA D001 Characteristic Waste?
Frozen lead left in process vessel for more than 10 years
Unknown Chemicals in Storage
May be Considered Wastes
Unknown Chemicals in Storage
Are these chemicals stored correctly?
Incompatible Storage?

- Sodium Cyanide
- Nitric Acid
- Caustic Flakes
- Nickel Strip
- Sodium Cyanide
- Muriatic Acid
- Nickel Chloride
- F006
- F007

NH₄OH
Container in Poor Condition
Open, Unlabeled, Undated Containers of Hazardous Wastes
Open, Unlabeled, Undated Container with Inadequate Aisle Space
CESQG Noncompliance

40 CFR 265.31
RCRA Section 3005
Illegal Disposal
Illegal Disposal of Hazardous Wastes
Battery and battery parts disposed on and in the ground.
Battery Breaking Building
Illegal Storage of Hazardous Wastes
Illegal Storage of Hazardous Waste
Illegal Storage of Hazardous Waste
Open, inappropriate, and unlabeled containers of spent fluorescent lamps
Broken Lamps = Mercury Release
Chemical Tank Farm after explosion and fire
Tank farm filling station after fire
Pump that was in use at the time of the explosion and fire
Intricate piping and electrical system
Failure to minimize releases

40 CFR 265.31
Cracked and leaking tank
Part of piping to the hazardous waste storage tank
Basement ceiling underneath WWTP
Hazardous Waste Release on the Basement Floor
Well in Basement
(release directly to GW)
Hints and Tips to Avoid Common Violations

• Examples of what to do or not to do!
  • Keep good inventory records and update them periodically
  • Chemicals are extremely valuable so treat them accordingly (i.e., don’t store them in a waste-like manner)
  • If you cease or stop using a plating line/parts washer/painting line and won’t use the chemicals again, don’t keep the chemicals around for more than 90 days after you remove them from the process line.
Hints and Tips to Avoid Common Violations

• Examples of what to do or not to do!
  • Do not store incompatible chemicals next to each other (keep them separated by a berm or wall)
  • Keep equipment in good operating condition (i.e., repair or replace leaking tanks)
  • Keep your building in good condition
  • Clean up spills or leaks on a regular basis
  • Dispose of chemicals that have exceeded their shelf life
Hints and Tips to Avoid Common Violations

• Examples of what to do or not to do!
  • Keep containers of hazardous waste closed except when adding or removing waste
  • Label and date hazardous waste containers
  • Inspect hazardous waste storage areas weekly
  • Keep adequate aisle space when storing waste
  • Keep copies of manifests and land disposal restriction notices readily available for inspection
Hints and Tips to Avoid Common Violations

• **Examples of what to do or not to do!**
  • Do not discharge anything to a stormwater drain without an NPDES permit and in compliance with the permit and/or without making a hazardous waste determination
  • Do not discharge to POTW without permission and in compliance with POTW limits
When in doubt, who do I call at EPA?

- IA: EPA R7 Environmental Action Line: 800-223-0425
- Oil and Chemical Spill Hotline 913-281-0991
- Jim Aycock 913-551-7887
- Kevin Snowden 913-551-7022
State Web Pages

- **Iowa:** [http://www.iowadnr.com/](http://www.iowadnr.com/)
- **Kansas:** [http://www.kdhe.state.ks.us/](http://www.kdhe.state.ks.us/)
- **Missouri:**
  [http://www.dnr.state.mo.us/index.html](http://www.dnr.state.mo.us/index.html)
- **Nebraska:** [http://www.deq.state.ne.us/](http://www.deq.state.ne.us/)
EPA Web Pages

• EPA HQ Web Page:  www.epa.gov

• EPA Region 7 Web Page:  www.epa.gov/region07

• EPA Region 7 RCRA Web Page:  http://www.epa.gov/region7/waste/index.htm