

# Idaho Department of Environmental Quality



## *Hazardous Waste Management*

December 2, 2010

# What is RCRA?

- Resource Conservation and Recovery Act of 1976
- First rules effective in 1980
- Goal is to reduce or eliminate generation of hazardous waste and discourage land disposal.



# ***Resource Conservation and Recovery Act (RCRA)***

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**Regulates:**

- **Solid waste  
(Subtitle D)**
- **Hazardous waste  
(Subtitle C)**



# Idaho and RCRA

Most states have authority to administer the federal RCRA program in lieu of EPA

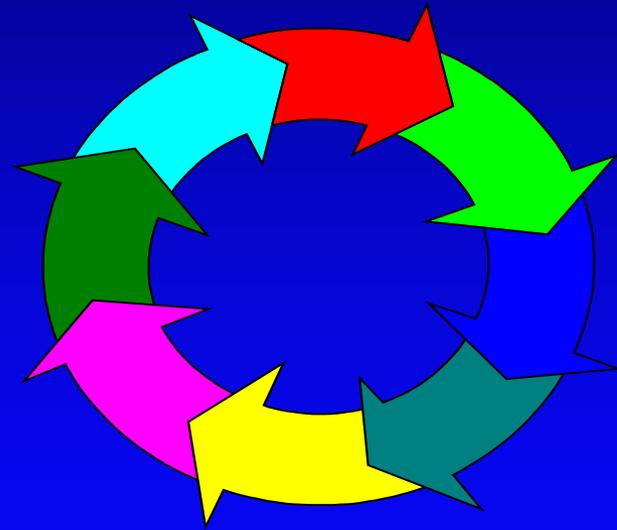
- Idaho is an authorized state
- Idaho adopts the federal RCRA regulations by reference
- 40 CFR Parts 260 - 279
- No more, and no less stringent



# *Hazardous Waste Management Hierarchy*

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- Source Reduction
- Reuse
- Recycling
- Treatment
- Disposal



# *Do I Have a Hazardous Waste?*

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- Each solid waste must go through a **Hazardous Waste Determination**
- The foundation on which proper hazardous waste management is built

## *Four steps to determine if you have a hazardous waste*

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1. Is the waste a "solid waste"?
2. Is the waste specifically excluded from the RCRA regulations?
3. Is the waste a "listed" hazardous waste?
4. Does the waste exhibit a characteristic **of hazardous waste**?

# Step 1: Is the waste a solid waste?

Solid wastes aren't necessarily solid!

Solid wastes can be liquid, semi-solid (sludges) or even gaseous.



# ***Do I have a solid waste?***

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- Is it a solid, semi-solid, liquid, or contained gaseous material which is discarded or has served its intended purpose?
- Is abandoned?
- Is it being recycled, burned for energy recovery, reclaimed, or accumulated more than one year?
- Is it inherently waste-like (e.g., dioxin wastes)?

*If you answered YES to any of the above, you may have a solid waste.*

*If you answered NO to all of the above, you do not have a solid waste.*

# *What is Not a Hazardous Waste?*

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If you can still use it, it's not a waste:

- Useable commercial products and materials

And:

- There are some exemptions to the definition of solid and hazardous waste

## ***Steps to determine if you have a hazardous waste***

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- ✓ 1. Is the waste a "solid waste"?
- 2. Is the waste specifically excluded from the RCRA regulations?
3. Is the waste a "listed" hazardous waste?
4. Does the waste exhibit a characteristic of hazardous waste?

## ***Step 2: Is my waste excluded?***

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Six main categories of exclusions

- Excluded from being solid wastes (§261.4(a)).
- Excluded from being hazardous wastes (§261.4(b)).
- Hazardous waste generated in raw material, product storage, or manufacturing units (§261.4(c))
- Laboratory samples (§ 261.4(d))
- Treatability studies (§§261.4(e) and (f)).
- Dredged material permitted under the Marine Protection Research and Sanctuaries Act or the Clean Water Act (§261.4(g))

*If a waste is excluded under any of these categories, Subtitle C hazardous waste requirements do not apply.*

## ***Steps to determine if you have a hazardous waste***

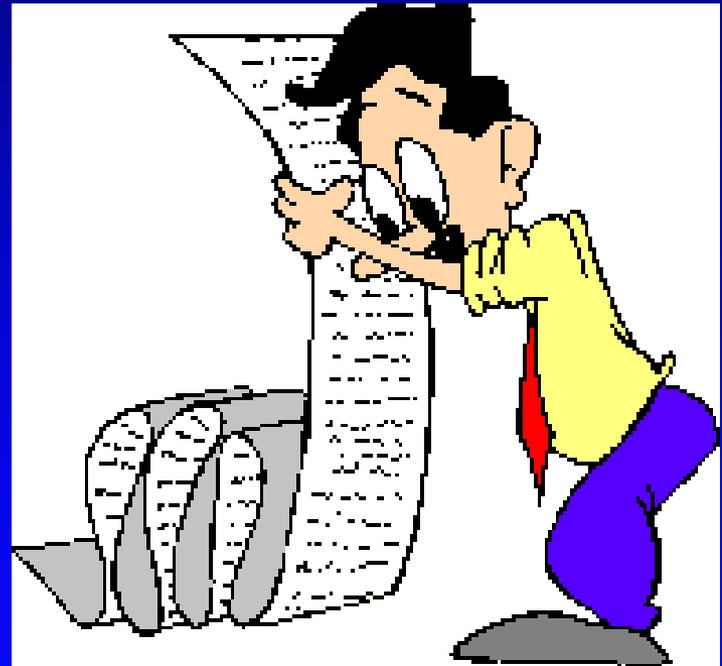
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- ✓ 1. Is the waste a "solid waste"?
- ✓ 2. Is the waste specifically excluded from the RCRA regulations?
- 3. **Is the waste a "listed" hazardous waste?**
- 4. Does the waste exhibit a characteristic of hazardous waste?

## ***Step 3: Is the waste a listed hazardous waste?***

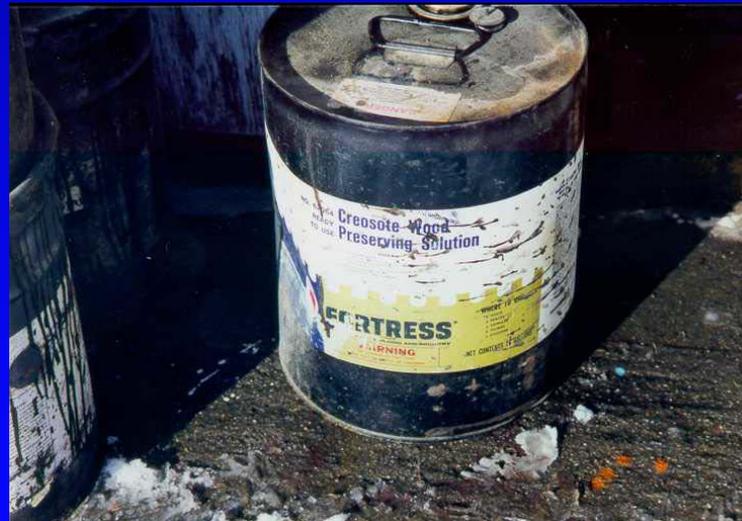
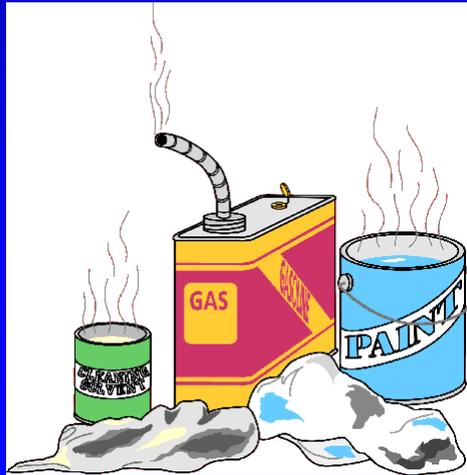
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- Is the solid waste listed in 40 CFR 261, Subpart D?
- Is it a mixture that contains a listed waste?



# Listed hazardous wastes include:

- Wastes from non-specific sources (F-wastes)
- Wastes from specific sources (K-wastes)
- Discarded commercial chemical products, off-specification species, container residues, and spill residues thereof (P-wastes [acute] and U-wastes)



# The Mixture Rule

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Any amount of  
nonhazardous  
solid waste

+

Any amount of  
listed hazardous  
waste

=

Listed  
hazardous  
waste

Any amount of  
nonhazardous  
solid waste

+

Any amount of listed  
hazardous waste that  
is listed solely  
for exhibiting a  
characteristic

=

Nonhazardous  
waste if mixture  
does not  
exhibit any  
characteristic

## ***Steps to determine if you have a hazardous waste***

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- ✓ 1. Is the waste a "solid waste"?
- ✓ 2. Is the waste specifically excluded from the RCRA regulations?
- ✓ 3. Is the waste a "listed" hazardous waste?
- 4. **Does the waste exhibit a characteristic of hazardous waste?**

# Four characteristics of hazardous waste

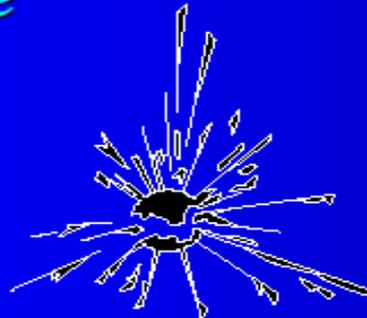
*Ignitable*



*Corrosive*



*Reactive*



*Toxic*



## Step 4: Does the waste exhibit a characteristic?

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Using generator knowledge, testing, or both determine if waste is:

- **Ignitable:** Flash point < 140°F ( 60°C) using Pensky-Martens or Setaflash closed cup tester.
- **Corrosive:**
  - pH  $\leq 2$  or  $\geq 12.5$ , or
  - Corrodes steel at a rate of 6.35 mm/yr or greater.
- **Reactive:** Undergoes violent changes of any kind, reacts violently with water, generates toxic air concentrations when mixed with water, or generates hydrogen sulfide or cyanide when exposed to pH conditions between 2 and 12.5.
- **Toxic:** Using the **TCLP** (Toxicity Characteristic Leaching Procedure) extraction method described in Appendix II of Part 261, the leachate (extract) contains any of the contaminants in excess of the concentrations listed in 261.24.

# ***Hazardous Waste Determination***

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- May be determined by laboratory analysis or testing
- May be determined by knowledge of process
- Both methods must be documented in writing in the generator's files

# ***Hazardous Waste Determination***

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- Sampling and analysis of the waste is more accurate and defensible than other options such as using process knowledge.
- If you use generator knowledge alone or in conjunction with sampling and analysis, you must maintain detailed documentation that clearly demonstrates the information is sufficient to identify the waste.

# ***Hazardous Waste Determination***

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**Documentation used to support generator knowledge may include, but is not limited to:**

- Material safety data sheets or similar documents,
- A thorough process description, including data on all raw materials used in the process, or
- Other forms of documentation.

# ***Hazardous Waste Determination***

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**Documenting both the generator knowledge and any analytical data is essential. Information used to make the waste determination must be maintained for at least three years after the waste is generated.** (this is the requirement for generators)

# ***Material Safety Data Sheets (MSDSs)***

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- Basic product information
- Hazardous ingredients
- Physical data
- Hazards
- Spill procedures
- Handling, storage, and use

# ***Material Safety Data Sheets (MSDSs)***

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**Note: Concerning Material Safety Data Sheets (MSDSs) manufacturers and suppliers are only required to list constituents that comprise 1 percent or more of the material it address.**

**An MSDS should be viewed as a supporting document and not as a sole means of documenting generator knowledge.**

## ***Things the landfills should consider prior to accepting any contaminated media.***

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- Does your facility have a liner and a leachate collection system in place?
- What are the cumulative effects of accepting contaminated media over time?
- What is the depth to GW at your facility?
- Does your facility have an adequate GW monitoring network in place?

## ***Things the landfills should consider prior to accepting any contaminated media.***

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- Has any modeling been done to demonstrate the appropriateness of your facility location? Did it take into consideration the acceptance of contaminated media?
- Is the County willing to accept the liability of accepting this type of material? Does the County understand the potential liability?

# Summary

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- **RCRA is very complicated!**
- Hazardous waste determinations are **not simple**
- Just because a material is not “hazardous” **does not mean there are no hazards** associated with the acceptance of this waste.
- **If you don't know, the answer should be NO!**

# Summary

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- When Superfund/CERCLA was implemented, one of the largest categories were MSWLFs.
- They were accepting waste allowed by the regulations at the time (Industrial waste and contaminated media)
- No liners, leachate collection systems or GW monitoring.
- Millions of dollars to clean up.

# Summary

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- DEQ can offer **no protection** from EPA fines which can result from the acceptance of improperly characterized wastes!
- If landfill staff (or the County) does not have the training necessary to understand or make decisions about the waste they are accepting, **IT SHOULD NOT BE ACCEPTED!**

