
Hazardous Waste Management

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RCRA Regulations and Backhaul Alaska

Why RCRA?

If a RCRA regulated entity in your community wants to ship waste through the backhaul program, you should know which RCRA regulations may apply. Household waste is exempt from RCRA.

Presentation Overview

1. History
2. Scope of RCRA
3. Non-Hazardous Waste Regulations
4. What is Hazardous Waste?
 - a) Characteristic
 - b) F listed
 - c) K listed
 - d) P and U listed
 - e) Acute and Non-Acute
5. Generator Categories and Requirements
 - a) Very Small
 - b) Small
 - c) Large
6. Universal Waste
7. Used Oil
8. Enforcement

Waste Program History

- Regulated by Resource Conservation and Recovery Act (RCRA), regulations were promulgated and effective November 1980
- Amended by Hazardous and Solid Waste Amendments (HSWA) in 1984
- Generator Improvement Rule issued November 28, 2016 effective in Alaska May 30, 2017
- RCRA allowed states to develop a program for authorization by EPA to operate in lieu of the federal program
- All but two states have authorized programs (Alaska and Iowa)
- EPA implements program in Alaska and in Indian Country



Scope of RCRA (it's not just hazardous waste)

Resource Conservation and Recovery Act

- Recycling/Materials Management
- Municipal Waste (garbage)
- Hazardous Waste
- Used Oil



RCRA Terms

- Solid waste – any discarded material (can be solid, liquid, or contained gas)
- Hazardous waste characteristic – ignitibility, corrosivity, reactivity, or toxicity
- Hazardous waste – a solid waste that exhibits one or more of the four hazardous waste characteristics or is included in one of four lists of hazardous waste
 - Each waste type is assigned a waste code (X123) and listed wastes have a hazard code (I, C, R, T, or H)
- Treatment, Storage, or Disposal Facility (TSD) – facility used for treating, storing, or disposing of hazardous waste (these activities require a permit)
- Household waste – waste generated for personal use or to maintain personal property (IS NOT HAZARDOUS WASTE)
- RCRA ID number – assigned to property not to a person or organization. One ID number per site.



Non-hazardous Solid Waste Regulations

- Establishes legal status of tribes as equivalent to municipalities (tribal landfills are municipal landfills)
- Delegate implementation and enforcement authority to state, local, and tribal government
- EPA can only enforce if there is imminent and substantial endangerment
- Sets criteria for solid waste management plans
- The Land Disposal Program Flexibility Act of 1996 allows the State of Alaska flexibility in landfill management requirements



Recycling Standards

- A material is recycled if it is used, reused, or reclaimed and meets legitimacy criteria
- **Recycled Materials are Exempt** from hazardous waste regulation
- Must be:
 - Managed as a valuable commodity
 - Contained
 - Managed as a comparable raw material
- Regulations include additional standards for recyclers



What is Hazardous Waste?



Characteristic Hazardous Waste

D001 Ignitable

- Liquid with a flashpoint less than 140 F
- A solid that spontaneously combusts
- Ignitable compressed gas
- Oxidizers
- Common ignitable waste
 - Degreasers and paint solvents
 - Lighter fluid
 - Nail polish remover
 - Waste fuel



Characteristic Hazardous Waste (continued)

D002 Corrosive

- Aqueous liquid with pH less than 2.0 (lemonade) or greater than 12.5
- Is a liquid that corrodes steel at a rate greater than 0.250 inch per year
- Common corrosive waste
 - Drain cleaners
 - Batteries
 - Acids



Characteristic Hazardous Waste (continued)

D003 Reactive

- Is normally unstable and undergoes violent change
- Reacts violently with water
- Is capable of generating toxic gases such as cyanide or sulfide
- Is capable of detonation when subjected to a strong initiating force or is heated under confinement
- Is a forbidden explosive under DOT regulation
- Common reactive waste
 - Aerosol cans
 - Lithium batteries
 - Dynamite or other explosives



Characteristic Hazardous Waste

D004 – D043 Toxicity

- Any waste that when placed in a landfill would potentially leach toxic chemicals at concentrations that are dangerous to human health or the environment
- Determined by use of Toxicity Characteristic Leaching Procedure (TCLP)
- Thirty-nine contaminants are listed in a table in alphabetic order
- Includes eight heavy metals and thirty-one organic chemicals

Common TCLP wastes

- Paints with cadmium, chromium, lead, or mercury
- Crushed fluorescent lamps
- Mercury switches and thermometers
- Pesticides containing 2,4 D, silvex, chlordane, lindane, endrin
- Paint solvents, degreasing solvents, or dry-cleaning fluids containing MEK, Perchloroethylene, Trichloroethylene, or Carbon tetrachloride
- Fuels containing benzene





Toxicity Characteristic Maximum Leachate Concentration mg/L (ppm)

D004 Arsenic.....	5.0	D028 1,2 Dichloroethane.....	0.5	D037 Pentachlorophenol.....	100.0
D005 Barium.....	100.0	D029 1,1 Dichloroethylene.....	0.7	D038 Pyridine.....	5.0
D018 Benzene.....	0.5	D030 2,4 Dinitrotoluene.....	0.13	D010 Selenium.....	1.0
D019 Carbon tetrachloride	0.5	D014 Methoxychlor.....	10.0	D011 Silver.....	5.0
D006 Cadmium.....	1.0	D012 Endrin.....	0.02	D039 Tetrachloroethylene.....	0.7
D020 Chlordane.....	0.03	D031 Heptachlor(epoxide).....	0.008	D015 Toxaphene.....	0.5
D021 Chlorobenzene.....	100.0	D032 Hexachlorobenzene.....	0.13	D040 Trichloroethylene.....	0.5
D022 Chloroform.....	6.0	D033 Hexachlorobutadiene.....	0.5	D041 2,4,5 Trichlorophenol.....	400.0
D007 Chromium.....	5.0	D034 Hexachloroethane.....	3.0	D042 2,4,6 Trichlorophenol.....	2.0
D023 o-Cresol.....	200.0	D008 Lead.....	5.0	D017 2,4,5 TP (Silvex).....	1.0
D024 m-Cresol.....	200.0	D013 Lindane.....	0.4	D043 Vinyl Chloride.....	0.2
D025 p-Cresol.....	200.0	D009 Mercury.....	0.2	D036 Nitrobenzene.....	2.0
D016 2,4-D.....	10.0	D035 Methyl ethyl ketone.....	200.0	D027 1,4 Dichlorobenzene.....	7.5



F Listed Waste

- Hazardous waste from non-specific sources
- Spent organic solvents that are used for their solvent properties
- Common F listed wastes include
 - Paint solvents
 - Paint removers
 - Brake cleaner
 - Degreasers



K Listed Waste

- Hazardous waste from specific sources
- Sources include: wood preserving, inorganic pigment production, organic chemical production, inorganic chemical production, pesticide production, explosives production, petroleum refining, iron and steel production, aluminum smelting, secondary lead smelting, veterinary pharmaceuticals, ink formulation, and coking operations

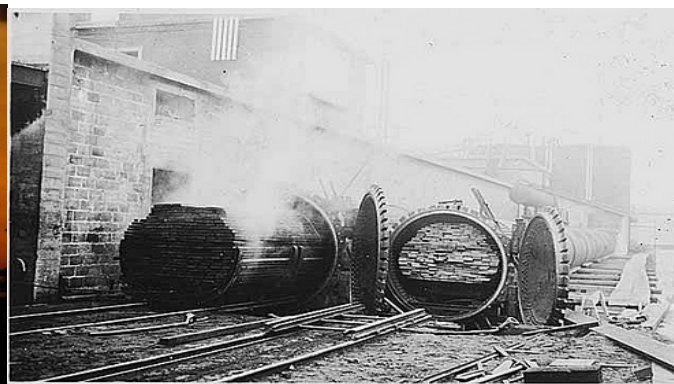


Image from the Northwest Railway Museum Collection



P and U Listed Waste

- Approximately 600 discarded unused chemical products
- Must be sole active ingredient
- Must be unused product or production intermediate
- P listed wastes are considered acutely hazardous



Acute and Non-acute Hazardous Waste

- Acute hazardous waste – listed waste with a hazard code of (H)
- P listed and F020, F021, F022, F023, F026, and F027 dioxin wastes are considered acutely hazardous
 - More stringently regulated, containers must be triple rinsed to be considered “RCRA empty”, over one quart is LQG
 - Common P list waste: Pharmacy may have nicotine, warfarin, epinephrine
- Non-acute hazardous waste - any listed or characteristic hazardous waste that is not an acute hazardous waste.



Mixture and Derived From Rule

- A mixture of a nonhazardous waste and a listed hazardous waste is a hazardous waste **DON'T MIX WASTES**
- A mixture of a nonhazardous waste and a characteristic hazardous waste is a hazardous waste only if the mixture exhibits the characteristic
- Any waste derived from the treatment, storage, or disposal of a hazardous waste is a hazardous waste.
 - Distillation sludge or ash from burning listed hazardous waste



Hazardous Waste Generators

- Generator is any person whose act or process produces hazardous waste
 - Auto shops
 - Fish processing facilities
 - Pharmacies/health clinics
- Three categories of generators based on monthly amount of waste generated:
 - Very Small Quantity Generator (VSQG)
 - Small Quantity Generator (SQG)
 - Large Quantity Generator (LQG)
- EPA can help you determine if there is a hazardous waste generator in your community



Generator Categories

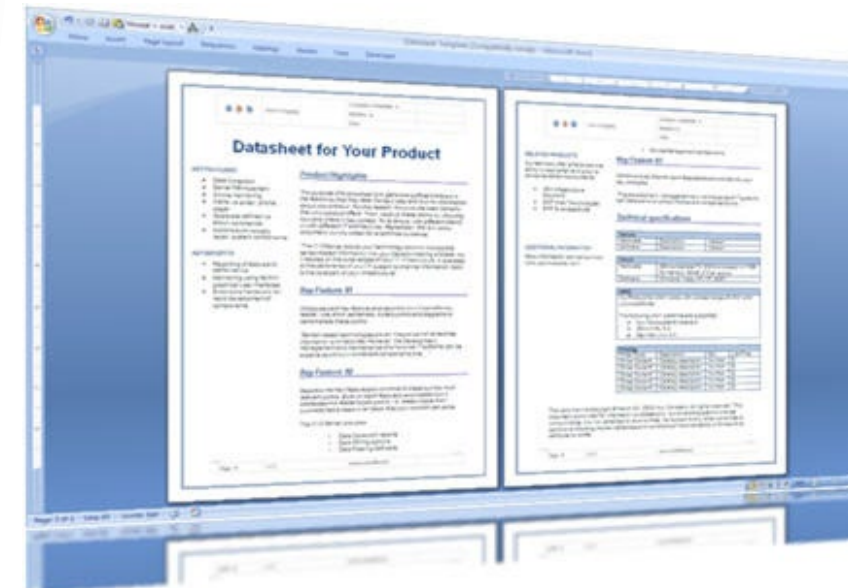
Generator Category	Non-acute HW/month	Acute HW/month	Residue from cleanup of acute HW	Total accumulation
VSQG	Less than 220 pounds ~ 0.5 drums	Less than 2.2 pounds ~1 quart	Less than 220 pounds ~0.5 drums	2,200 pounds (~4.5 drums) of non-acute, 2.2 pounds of acute, or 220 pounds of residue from acute
SQG	Between 220 and 2,200 Pounds ~0.5 to 4.5 drums	Less than 2.2 pounds ~1 quart	Less than 220 pounds ~0.5 drums	13,200 pounds (~27 drums) of non-acute, 2.2 pounds of acute, or 220 pounds of residue from acute
LQG	Greater than 2,200 pounds ~4.5 drums	Greater than 2.2 pounds ~1 quart	Greater than 220 pounds ~0.5 drums	No limit

Waste Designation

- **Generator is responsible** for determining if their waste is hazardous waste **at the point of generation** which includes the place and time that it was determined to be waste.
- Must identify all applicable waste codes, both listed and characteristic
- May need to do chemical analysis
- Can use acceptable knowledge
 - Must be based on reliable and relevant information from any source
- Must keep waste designation records for three years
- Hiring third party contractors, waste brokers, or consultants **does not transfer** responsibility to those contractors.



Supplier labels must be bilingual (English/French), easy to read, and durable. If the label is lost, damaged, or no longer readable, the product must be relabeled.



Counting Hazardous Waste

- Count non-acute and acute separately
- Determine generator category for each
- Manage all waste to highest standard
- Don't count:
 - Waste immediately neutralized onsite
 - Waste immediately placed in wastewater treatment system
 - Waste managed in totally enclosed treatment system
 - Waste recycled onsite without accumulation or storage
 - Episodic event waste



Generator Requirements

Notification

- VSQG – not required to notify or get ID number unless doing episodic event
- SQG – notify, get ID number and renew every four years
- LQG – notify, get ID number and renew every two years



Inspections

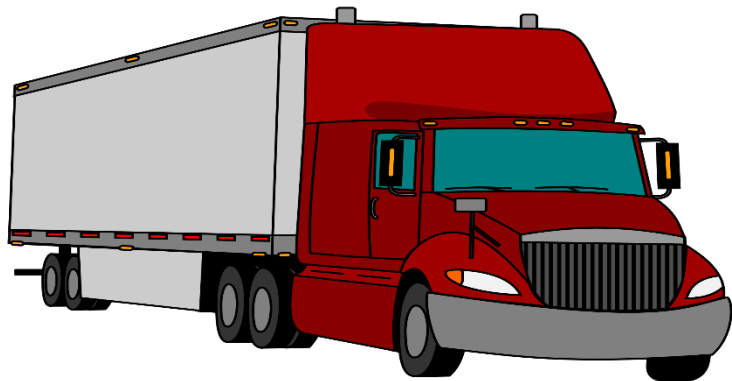
- VSQG – not required to do inspections
- SQG & LQG – inspect HW tanks daily and other accumulation areas once per week looking for leaks



Generator Requirements (continued)

Off-site Shipment Options

- VSQG - to Recycler, permitted TSD, municipal landfill, or LQG under control of the same person, manifest is not required
- SQG & LQG – to recycler or permitted TSD, must be manifested



Storage Without Permit Time Limit

- VSQG – No limit
- SQG – 180 days or 270 days if more than 200 miles to TSD
- LQG – 90 days



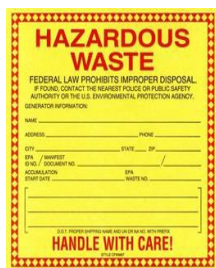
Generator Requirements (continued)

Container & Tank Management

- VSQG – Label containers only if going to LQG
- SQG & LQG – Label tanks and containers “Hazardous Waste”, a hazard label, and start date. Close containers and meet tank operating standards in 265 Subpart J

Emergency Preparedness

- VSQG – None required
- SQG – Spill kit, fire extinguishers, internal communication system, minimal training
- LQG – Spill kit, fire extinguishers, eyewash, showers, internal communication system, formal training plan and annual refresher training



Record Keeping

Keep all records for at least three years. Records include:

- VSQG – waste designation, generator category determination, episodic generation
- SQG – notification, waste designation, generator category determination, episodic generation, manifests, inspection logs, tank assessments
- LQG - notification, waste designation, generator category determination, waste from VSQG, manifests, biennial report, inspection logs, tank assessments, contingency plan (quick reference guide), notice to first responders, training plan, training records





Episodic Generation

- Allows SQG and VSQG to do a cleanout or spill cleanup without becoming LQG (VSQG must have ID number to participate)
- For planned event must notify EPA 30 days in advance using form 8700-12
- For unplanned event must notify within 72 hrs and then submit form 8700-12
- Waste must be shipped within 60 days using a manifest

Episodic Generation (continued)

- VSQG and SQG must label containers “Episodic Hazardous Waste”
- Allowed one event per year
- Can petition EPA for second event
- Second event must be different than first event (planned vs unplanned)



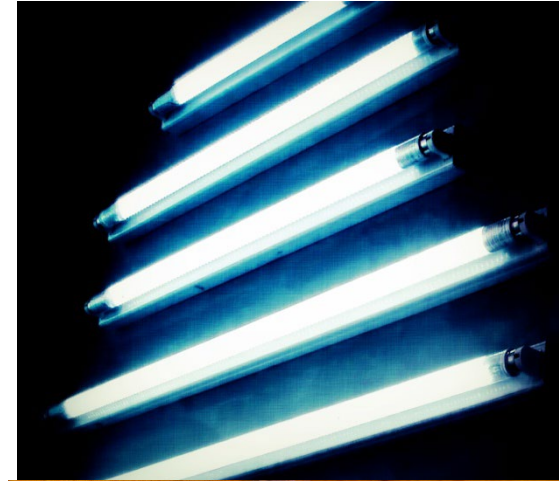
Universal Waste

- Less stringent regulations for management of some commonly generated lower risk hazardous wastes
- Includes batteries, used lamps, mercury containing equipment, recalled pesticides or pesticides managed as part of a waste pesticide collection program
- Lamps can't be crushed



Universal Waste (does not apply to household waste)

- Can accumulate up to one year at the place of generation
- Must ship to another UW handler, recycler, or permitted TSD
- Lamps cannot be crushed intentionally
- Small quantity handler accumulates less than 11,000 pounds at any time
 - No notification or ID number required
- Large quantity handler accumulates 11,000 pounds or greater at any time
 - Must notify and get ID number





Universal Waste Requirements

- Lamps, pesticides, leaking batteries, and mercury containing equipment must be in closed containers
- Labeling required
 - “Universal Waste Batteries”, “Waste Batteries”, or “Used Batteries”
 - “Universal Waste Pesticides” or “Waste Pesticides”
 - “Universal Waste Mercury Containing Equipment”, “Waste Mercury Containing Equipment” or “Used Mercury Containing Equipment”
 - “Universal Waste Lamps”, “Waste Lamps”, or “Used Lamps”

Used Oil

- Any oil refined from crude or any synthetic oil that has been used as a lubricant, heat transfer fluid, or hydraulic fluid and is contaminated through use
- Not hazardous waste unless mixed with HW
- Must be recycled, re-refined, or burned for energy recovery
- Oil for burning or recycling is “used oil”
- Oily waste, oily rags, that is disposed is “waste oil”
- ID numbers are:
 - Required for transporters, marketers, processors, and re-refiners
 - Not required for generators



Used Oil Generator

- May accumulate used oil in tanks or containers
 - Containers and tanks must be labeled “Used Oil”
- Must clean up spills
- Can self transport up to 55 gallons
- Must go to processor, recycler, re-refiner, or be burned for energy recovery
- If households are changing their oil and taking it to a community collection center, the collection center is the used oil generator and must follow requirements





Used Oil Burning

- Generator can burn used oil onsite in a space heater
 - Burner capacity less than 500,000 Btu per hour
 - Burner vented to outside air
- Oil sent off site for burning must be “on specification” or go to a permitted burner
 - Contain less than 5 ppm arsenic, 2 ppm cadmium, 10 ppm chromium, 100 ppm lead, and/or 4,000 ppm total halogens
 - Flash point greater than 100 F
- Generator or transporter has to declare on specification
 - Becomes marketer requiring ID number
- Rebuttable presumption for halogens above 1,000 ppm
 - Presumed to be hazardous waste
 - Generator can demonstrate that halogen is from non-hazardous waste source to rebut presumption

Generator Waste and Your Backhaul Program

- Keep household waste separate from generator waste
- If household waste and generator waste are mixed it becomes difficult to tell which containers are subject to regulatory requirements:
 - VSQG – no time limit for accumulation; cannot collect more threshold quantities
 - SQG – can accumulate waste no longer than 270 days before required to ship it off-site, extension possible
 - Universal waste – can accumulate no longer than one year
 - Household waste – no time limit, no quantity limit
- At the time of the backhaul event, SQG and LQG waste must be manifested



EPA Enforcement

- Informal Notice of Violation
- Formal
 - Expedited Settlement Agreement \$1,000 per violation
 - Administrative order and Penalty up to \$42,292 per day per violation
- Criminal
 - Fines and possible jail time



Questions



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