HERITAGE
ENVIRONMENTAL SERVICES

Heritage Thermal Services
RCRA Incineration Basics

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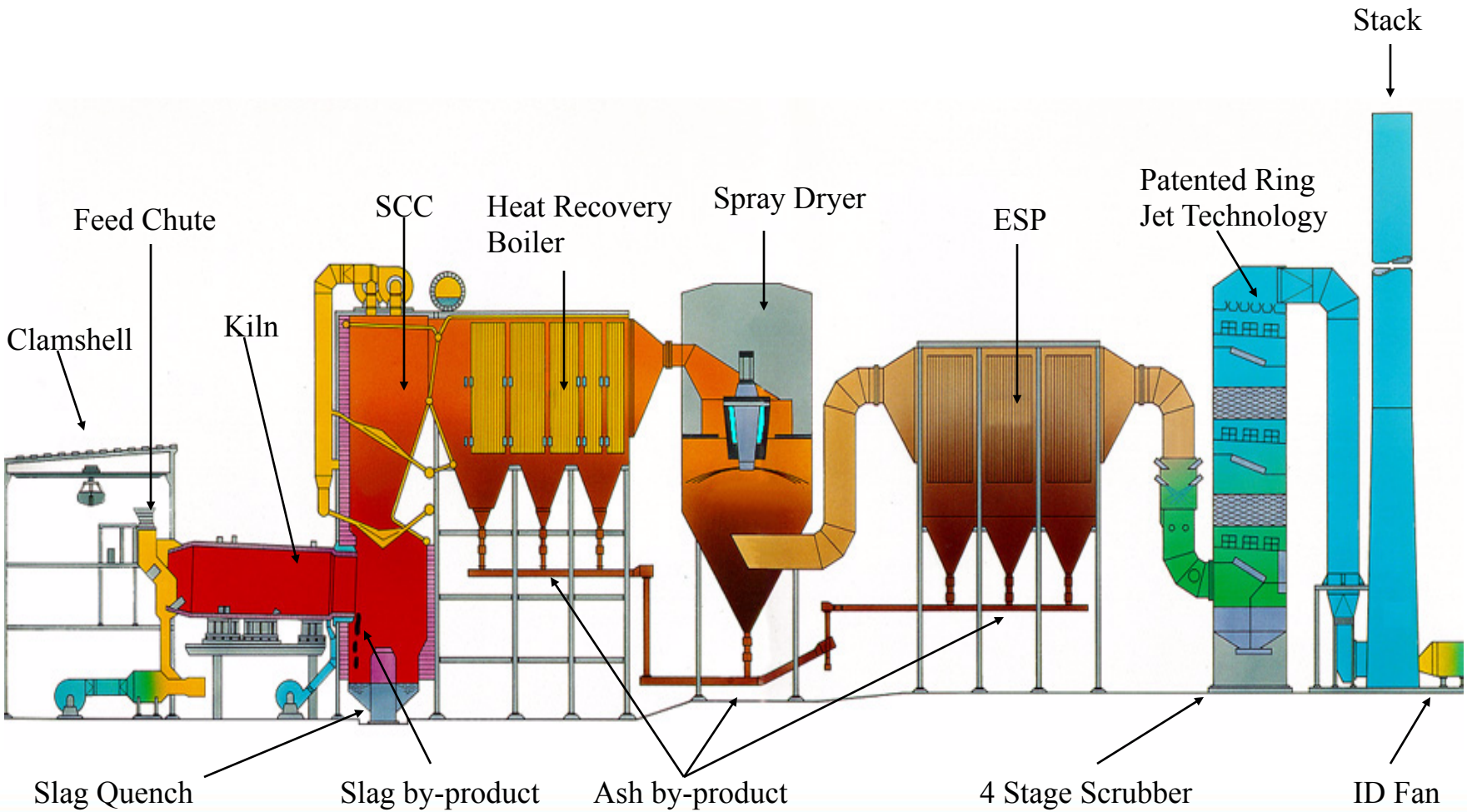


HERITAGE
People Providing Solutions

Feed Systems

Solids	Liquids
●Bulk solid pits: ●No Reactive, no free liquids ●Containers: ●Up to 85 gallon container ●Skip hoist ●1 cubic yard steel box, consumer commodities	●3 sludge / 3 liquid lances ●Tank Farm ●15 tanks, 224 k gallon practical capacity, 7 feed tanks. ●Pump-out Tanks ●4 tanks, 3 drum pumping stations, 1 feed tank, drum extruder. ●2 Direct tanker bays ●2 Direct drum stations

Resource Conservation & Recovery Act

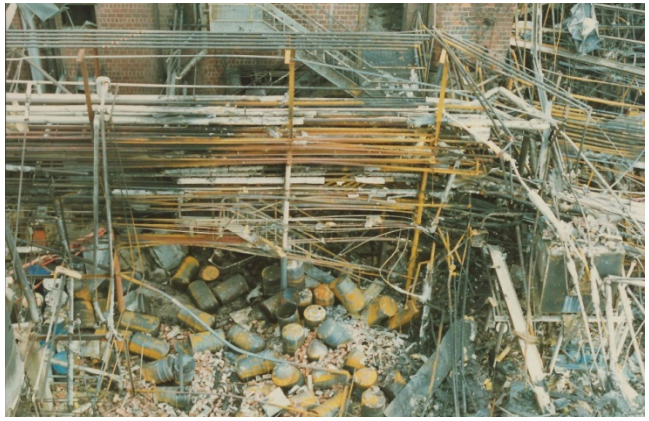
- Almost every human activity creates waste

- Municipal waste
  - Paper
  - Yard trimmings
  - Glass
  - Food wastes
- Industrial and manufacturing processes create both solid and hazardous
- EPA regulates the Resource Conservation and Recovery Act (RCRA)

RCRA

- RCRA Orientation Manual:
  - "The Resource Conservation and Recovery Act (RCRA) was enacted in 1976 to address the 'inconsistent' disposal of municipal and industrial solid waste generated in the US. After several amendments, today governs the management of solid and hazardous waste and underground storage tanks (USTs)."

RCRA Goals



- Protection of humans from hazards of waste disposal
- Conservation of energy and natural resources - recycling/recovery
- Reduction or elimination of waste production
- Remediation (clean up) of waste which has been spilled, leaked, or been improperly disposed

State Programs – Authorization

- States have to be at least *as stringent* or may be *more stringent*
- California is among the latter.

Household Hazardous Wastes

- Some household wastes resemble industrial wastes:
  - Fluorescent Light Bulbs
  - Mineral Spirits from automobile maintenance
  - Old gasoline
  - Used Paints
  - Cleaning Solutions
  - Drain Cleaner
  - Pharmaceuticals
  - Herbicides
  - *Pesticides*
  - Aerosol Cans

Hazardous Wastes

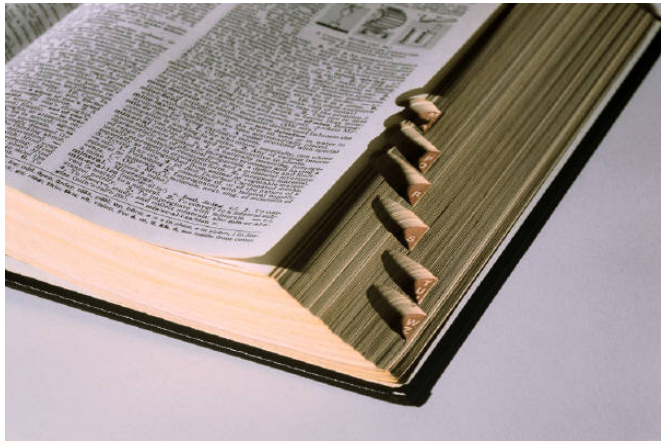
- Many pesticides are RCRA Hazardous Wastes
- If a waste is Hazardous Waste, more restrictions apply
- Generators have to manage Hazardous Waste properly both onsite and in sending them for disposal or recycling
- Generators and Treatment Storage and Disposal companies have to comply with Land Disposal Restrictions

Who Determines if a Waste is Hazardous

- Generator of hazardous waste determine if wastes are hazardous or not

Definition of Hazardous Waste

- Lists of Hazardous Waste
  - Non-specific sources (F-list)
  - Specific sources (K-list)
  - Commercial Chemical Products (U- and P-lists)
  - Mixture and Derived-from Rules
- Characteristics of Hazardous Waste
  - Ignitability (D001)
  - Corrosivity (D002)
  - Reactivity (D003)
  - Toxicity (D004-D042)



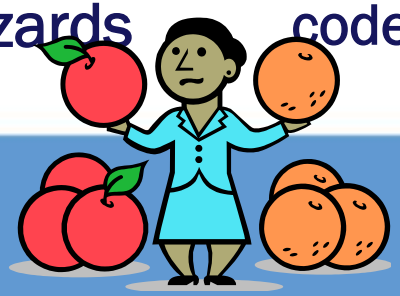
What is the Difference

Characteristic (D-codes)

- Based on laboratory data
- The TCLP (toxicity characteristic leaching procedure) test simulates how the waste will release contaminants in a landfill
- Codes can be removed if no longer present after treatment
- Measurement of actual physical or chemical hazards

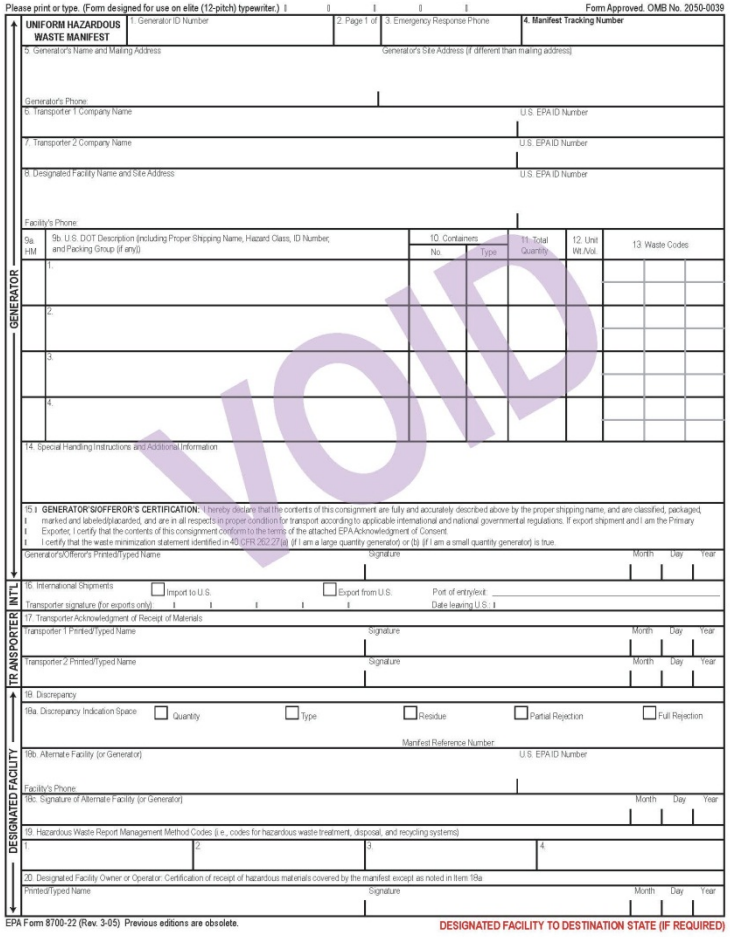
Listed (F, K, P, U)

- Either the waste is *on* the list, or it *isn't*
- Once on the list it is hazardous indefinitely regardless of physical or chemical properties
- If listed wastes are mixed with other wastes, all the waste is assigned the waste code (mixture rule)
- If listed wastes are treated, the residue is assigned the waste code (derived from rule)



Uniform Hazardous Waste Manifest

- All Haz Waste Shipped
- Federal preemption of state-form manifests
- Uniform form, format, a



Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST | 1. Generator ID Number | 2. Page 1 of | 3. Emergency Response Phone | 4. Manifest Tracking Number

5. Generator's Name and Mailing Address | Generator's Site Address (if different than mailing address)

Generator's Phone:

6. Transporter 1 Company Name | U.S. EPA ID Number

7. Transporter 2 Company Name | U.S. EPA ID Number

8. Designated Facility Name and Site Address | U.S. EPA ID Number

Facility's Phone:

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1.					
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name | Signature | Month Day Year

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:

Transporter signature (for exports only) | Date leaving U.S.:

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name | Signature | Month Day Year

Transporter 2 Printed/Typed Name | Signature | Month Day Year

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) | U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator) | Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1. | 2. | 3. | 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name | Signature | Month Day Year

GENERATOR | INT'L | TRANSPORTER | DESIGNATED FACILITY

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete. DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

Goals of LDR

- Identify wastes with similar physical and chemical characteristics
- Establish treatability groups
- Identify the Best Demonstrated Available Technology (BDAT) to treat these grouping

Disposal Options

Incineration, Chemical Treatment, and Landfill

General LDR Theory

- Destroy (burn) organics
  - Incineration
  - Cement kiln
- Destroy CN bond
  - Cyanide Destruct Unit
- Chemically stabilize (immobilize/tie up) metals
  - Wastewater treatment
  - Stabilization in containment buildings

Treatment Standards:

- 40 CFR 268.40
- Three types of standards:
  - Concentration-based Standards
  - Technology-based Standards
  - Prohibited from Land Disposal

LDR Excerpt

D037[9]	Wastes that are TC for Pentachlorophenol based on the TCLP in SW846 Method 1311.	Pentachlorophenol	87–86–5	0.089 and meet § 268.48 standards [8]	7.4 and meet § 268.48 standards [8]
D038[9]	Wastes that are TC for Pyridine based on the TCLP in SW846 Method 1311.	Pyridine	110–86–1	0.014 and meet § 268.48 standards [8]	16 and meet § 268.48 standards [8]
D039[9]	Wastes that are TC for Tetrachloroethylene based on the TCLP in SW846 Method 1311.	Tetrachloroethylene	127–18–4	0.056 and meet § 268.48 standards [8]	6.0 and meet § 268.48 standards [8]
D040[9]	Wastes that are TC for Trichloroethylene based on the TCLP in SW846 Method 1311.	Trichloroethylene	79–01–6	0.054 and meet § 268.48 standards [8]	6.0 and meet § 268.48 standards [8]
D041[9]	Wastes that are TC for 2,4,5-Trichlorophenol based on the TCLP in SW846 Method 1311.	2,4,5-Trichlorophenol	95–95–4	0.18 and meet § 268.48 standards [8]	7.4 and meet § 268.48 standards [8]
D042[9]	Wastes that are TC for 2,4,6-Trichlorophenol based on the TCLP in SW846 Method 1311.	2,4,6-Trichlorophenol	88–06–2	0.035 and meet § 268.48 standards [8]	7.4 and meet § 268.48 standards [8]
D043[9]	Wastes that are TC for Vinyl chloride based on the TCLP in SW846 Method 1311.	Vinyl chloride	75–01–4	0.27 and meet § 268.48 standards [8]	6.0 and meet § 268.48 standards [8]
F001, F002, F003, F004, & F005	F001, F002, F003, F004 and/or F005 solvent wastes that contain any combination of one or more of the following spent solvents: acetone, benzene, n-butyl alcohol, carbon disulfide, carbon tetrachloride, chlorinated fluorocarbons, chlorobenzene, o-cresol, m-cresol, p-cresol, cyclohexanone, o-dichlorobenzene, 2-ethoxyethanol, ethyl acetate, ethyl benzene, ethyl ether, isobutyl alcohol, methanol, methylene chloride, methyl ethyl ketone, methyl isobutyl ketone, nitrobenzene, 2-nitropropane, pyridine, tetrachloroethylene, toluene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, 1,1,2-trichloro-1,2,2-trifluoroethane, trichloroethylene, trichlorofluoromethane, and/or xylenes [except as specifically noted in other subcategories]. See further details of these listings in § 261.31.	Acetone	67–64–1	0.28	160
		Benzene	71–43–2	0.14	10
		n-Buthyl alcohol	71–36–3	5.6	2.6
		Carbon disulfide	75–15–0	3.8	NA
		Carbon tetrachloride	56–23–5	0.057	6.0
		Chlorobenzene	108–90–7	0.057	6.0
		o-Cresol	95–48–7	0.11	5.6
		m-Cresol (difficult to distinguish from p-cresol)	108–39–4	0.77	5.6
		p-Cresol (difficult to distinguish from m-cresol)	106–44–5	0.77	5.6
		Cresol-mixed isomers (Cresylic acid) (sum of o-, m-, and p-cresol concentrations)	1319–77–3	0.88	11.2
		Cyclohexanone	108–94–1	0.36	NA
		o-Dichlorobenzene	95–50–1	0.088	6.0
		Ethyl acetate	141–78–6	0.34	33
		Ethyl benzene	100–41–4	0.057	10
		Ethyl ether	60–29–7	0.12	160
		Isobutyl alcohol	78–83–1	5.6	170
		Methanol	67–56–1	5.6	NA
		Methylene chloride	75–9–2	0.089	30

Feel Free to Contact Us

- We are happy to provide tours
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