



Hazardous Waste Law

Gary Lucks JD, CPEA
Compliance Assurance & Counseling



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Gary Lucks JD, CPEA

Bay Law Group LLP

Compliance Assurance & Counseling

- 39 Years Experience as EHS Attorney & Sustainability Advisor
- Certified Professional Environmental Auditor
- Author
- Adjunct Professor, Presidio Graduate School
- California Lawyer’s Assoc. Environmental Law Section
- Bay Area AQMD Advisory Council
- Institute of Internal Auditors (IIA)
- Sustainable Earth Initiative Cofounder

Disclaimer: This presentation is intended for informational purposes only. Content may not cover all relevant laws. Before acting on information contained in this presentation, the implications of the law should be independently evaluated considering the unique factual circumstances of the potentially affected facility, party, or entity.



510-290-5423
gary@beyondcompliance.net
www.beyondcompliance.net



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California Environmental Law & Policy
A Practical Guide 2nd Edition

Albert I. Herson
Gary A. Lucks

Environmental Law

The 2022 Environmental Legislative Session: Ramping up Climate Ambitions

INTRODUCTION

Although Governor Newsom signed fewer environmental bills than typical in an off-year election year, the 2022 legislative session produced an unusual full review of the existing climate policies. At the beginning of the session, a Senate Climate Working Group was formed to advance efforts to tackle the climate crisis by developing a comprehensive legislative climate package designed to achieve national greenhouse gas (GHG) emission reductions by 2030.

In a highly unusual move, Governor Newsom signed himself into the legislative process in the second half of the session, informing the Legislature he intended to advance ambitious climate policy to deliver a two pillar plan (and a goal) to reduce a clean energy goal to 100% by the year 2030. GHG emissions reduction goal (2) enabling more clean electricity production, increasing renewable energy utilization, and energy (CIC) permitting, program and (3) protecting the public from the health and safety impacts of fossil fuel wells. With the exception of AB 2330 (CIC), which would have advanced the 2030 climate goal, these plans were signed into law.

The beauty of climate bills beyond other environmental policy proposals in 2022. Other legislative highlights include enactment of the expanded Plastic Pollution Prevention and Packaging Producer Responsibility Act aimed at dramatic reductions in single-use plastics and a new law mandating the Department of Toxic Substances Control (DTSC) to evaluate its enforcement method of determining whether a waste is a "hazardous waste." The Governor also signed legislation designed to speed up regulation of hazardous chemicals in consumer products under the National Green Chemistry Program. The Legislature also carried up last major progress aimed at expanding existing state with the Middle-Class Housing Act of 2022 and the Affordable Housing and High-Speed Rail Act of 2022. Finally, the legislature delivered the most aimed at increasing the pace and scale of prescribed permits to provide wildlife with growing habitat connectivity to prevent wildlife habitat collisions.

Except for budget-related urgency bills that were aimed at appropriations which took effect on the day of their signing, the attached bills became effective on January 1, 2023.

CLIMATE CHANGE, ADAPTATION & RESILIENCY

California's fourth Climate Change Assessment report is also, among the most ambitious outcomes by 2030. The report projects temperature increases ranging from 1.6 to 6.6 °C, a dramatic rise from 1.0 to 2.0 °C. These increases are consistent with California's business and a 75% increase in the average energy demand by mid-century should not fail to significantly reduce GHG emissions in the transportation, buildings and non-GHG emissions. It is the impetus for making the state's climate goals and, as the necessary to keep the global average temperature below 1.5 °C, a just transition plan.

SPRING/SUMMER 2023

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Hazardous Waste Management Training

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Course Overview

1. Regulatory Overview	11. Polychlorinated Biphenyls (PCB's)
2. Hazardous Waste Characterization	12. Medical Waste
3. Empty Containers	13. Spill Prevention
4. Used Oil	14. Agency Findings and Fines
5. Hazardous Waste Management/Activities	15. New Hazardous Waste Regulations/Legislation
6. Land Disposal Restrictions	16. Hazardous Materials Management – Storage and Compatibility
7. Treated Waste Wood	17. Hazardous Materials Legislation
8. Universal Waste	18. Hazardous Materials Transportation Act
9. Treatment Storage and Disposal Facilities	
10. Tiered Permitting	

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California Resources

- **TRI/EPCRA/CERCLA/RMP/Oil Hotline:** (800) 424-9346
- **RCRA Hotline Now defunct! / replaced by RCRA online @**
<http://www.epa.gov/epawaste/inforesources/online/index.htm>
- **DTSC Regulatory Assistance Office and Business Liaisons:**
<https://www.dtsc.ca.gov/ContactDTSC/Regulatory-Assistance-Officers.cfm>
 - (800) 728-6942
 - Send email inquiries to: rao@dtsc.ca.gov

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Environmental Law is Statutory and Judicial

Environmental law includes the following:

- Statutes (federal & state)
- Regulations (federal, state, regional, and local)
- Local ordinances too
- Court decisions (federal & state)



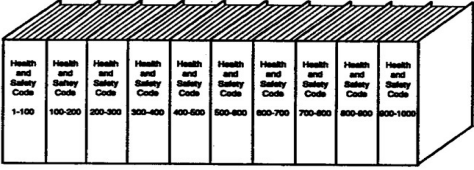
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California State Laws

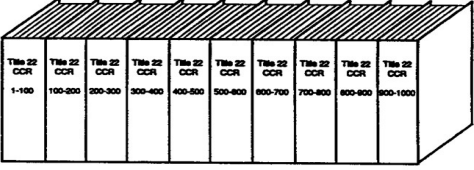
STATUTES:

- Health and Safety Code
- Public Resources Code
- Fish and Game Code
- Water Code



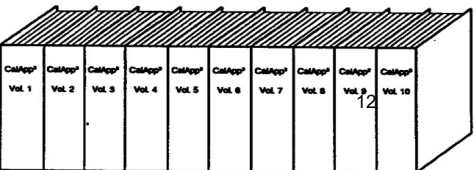
REGULATIONS:
CCR=California Code of Regulations

- Title 8 CCR Sect. 100
- Title 14 CCR Sect. 100
- Title 17 CCR Sect. 100
- Title 22 CCR Sect. 100
- Title 23 CCR Sect. 100
- Title 27 CCR Sect. 100



JUDICIAL OPINIONS:

- California Supreme Court=Cal
- California Appellate Court=CalApp³



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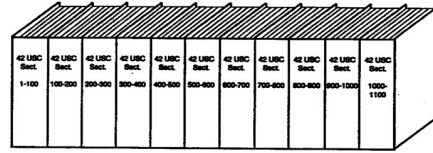
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Federal Laws

STATUTES:

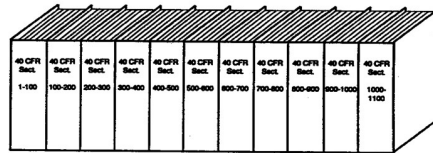
USC = UNITED STATES CODE

- 33 USC
- 42 USC



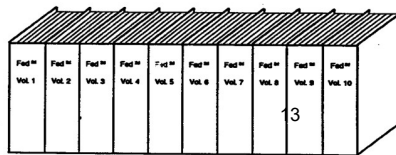
REGULATIONS:

- CFR = CODE OF FEDERAL REGULATIONS

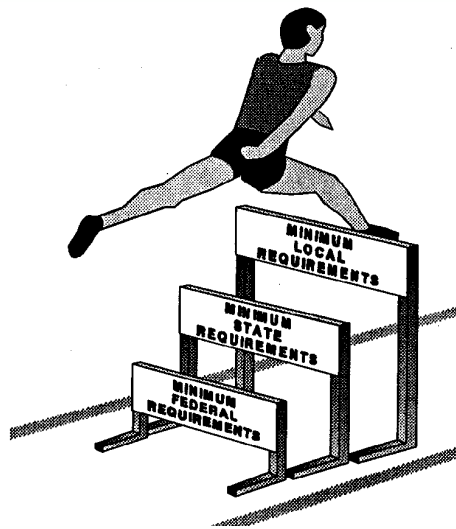


JUDICIAL OPINIONS:

- UNITED SUPREME COURT
- FEDERAL REPORTER
- FEDERAL SUPPLEMENT



State & Local Laws Can be More Stringent than Federal Law



Regulatory/Statutory Construction and Semantics

Toxic

Hazardous

Focus on applicability and exemption criteria

Focus on “terms of art” as defined

- “hazardous waste”
 - “hazwoper”
 - “hazcom”
 - “hazardous material”
 - “hazardous substance”
 - “Extremely hazardous substance”
 - “toxic waste”
 - “solid waste”
- “ignitable”
 - “flammable”
 - “owner”
 - “operator”
 - “oil”
 - “Major”

FLAMMABLE

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EHS Compliance Assurance Strategies

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Legal Registry: List all potentially applicable regulatory requirements and confirm exempt operations

Program Descriptions of regulatory programs and requirements (to ensure that staff is familiar with specific compliance tasks and action items)

SOPs: addressing the “who, what, when, and how” of obligations to be accomplished throughout the year

Roles and responsibilities for implementing the compliance calendar

Training program (identify what environmental training is required for which types of employees, & when)

Updates: Module for gathering and implementing new regulatory developments

Release reporting protocol

Spill Management/Emergency Response

Dealing with Regulators: Protocol for Dealing with Regulators

Compliance calendar with brief descriptions of specific compliance tasks (permit renewals, monitoring frequencies, report submittals, training deadlines, etc..) and action items.

EHSMIS: Enterprise information management system

MOC: Management of change

Self Inspections/Checklists for multi-media environmental inspection checklists

Third Party Auditing: Validate compliance

CAPA/Root Cause: Corrective Action Preventive Action support and implementation

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Beyond Compliance Assurance Strategies Operationalize

Legal Registry:

- Identify all potentially applicable EHS requirements
- Confirm exempt operations
- Prove the Negative

SOPs/Compliance Calendar:

- “who, what, when, and how” of obligations
- Spill Management/Release Reporting

Compliance calendar:

- Identify specific compliance tasks (e.g., permit renewals, monitoring frequencies, report submittals, training deadlines, etc..) and action items.
- **Roles and responsibilities** for implementing the compliance calendar

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Beyond Compliance Assurance Strategies Operationalize

Training programs (Required & Advisory)

- Training Matrix (Who & When)
- Including Contractors

Updates:

- Identify & cascade developments into tools

Hotline: Anonymous tips

Management of Change:

- Transitioning staff & contractors & organizations to re-direct resources, business process, budgets

Enterprise Information Management System

Strategy for Dealing with Regulators

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Beyond Compliance Assurance Strategies: Operationalize

Self Inspections:

- Internal ground truthing

Third Party Auditing:

- EHS assessment by third party

Operational Excellence

- Facilitation
- Anonymous Deep Dive Assessment

CAPA/Root Cause:

- Corrective Action Preventive Action support & implementation

Culture & Accountability





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Sample Environmental Legal Registry

Regulation Topic	Regulatory Citation (Federal/State/ Local/City)	Regulatory Requirement	Threshold Requirement (i.e., threshold limits/ quantities/volumes)
EPA Identification Number	Cal H&SC 25205.16	Facility should verify that information provided DTSC and EPA w/ regard to hazardous waste generating activity is accurate and current. Provide waste codes associated with the four largest hazardous waste streams. This fee will be due 30 days after the applicable DTSC notice is received.	>1000 kg/mo.. of hazardous waste, or >1 kg/mo.. of acutely hazardous waste
Hazardous Waste Tanks	22 CCR 66265.191-194	For each existing hazardous waste tank system, the facility will meet tank integrity standards, tank and system component design and construction standards, containment and release detection requirements, and operating, overfill and spill prevention requirements.	Applies to all hazardous waste tanks
SPCC Plan	40VFR Part 112	Spill Prevention Control & Countermeasure Plan: Facilities with greater than 1,320 gallons of combined oil capacity are required to complete an SPCC Plan. Oil includes diesel fuel, gasoline, motor oil, transformer oil, hydraulic elevator oil, vegetable oil, used oil, and cooking grease.	> 1,320 gallons of oil capacity

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Legal Register Applicability Analysis

Regulatory Agency	Regulation Topic	Regulatory Citation (Federal, State, Local, City)	Regulatory Requirement	Threshold Requirement (i.e., threshold limits, quantities, volumes)	Requirement Type	Frequency
DTSC, CUPA	EPA Identification Number	22 CCR 66261.12	Facilities must get a USEPA or state ID number, based on the type of hazardous waste generated. Because the facility generates both RCRA and non-RCRA waste, it has a USEPA ID number (CAR000017004).	Applies to all hazardous waste generators	Permit/ License/ Approval	One Time
DTSC, CUPA	EPA Identification Number	Cal H&SC 25205.16	Facility should verify that information provided DTSC and EPA w/ regard to hazardous waste generating activity is accurate and current. Provide waste codes associated with the four largest hazardous waste streams. This fee will be due 30 days after the applicable DTSC notice is received.	>1000 kg/mo. of hazardous waste, or >1 kg/mo. of acutely hazardous waste	Report/ Notification/ Posting	Yearly
DTSC, CUPA	Accumulation Time Limits for Hazardous Waste	22 CCR 262.34; H&SC 25123.3	Hazardous waste may be accumulated onsite in containers, tanks, drip pads, or containment buildings; only in compliance with applicable time limits (90 days, in general – exceptions may be 180 days, 270 days, or 365 days).	>1000 kg/mo. of hazardous waste, or >1 kg/mo. of acutely hazardous waste	Engineering Controls/ Administrative Controls	As needed
DTSC, CUPA	Satellite Hazardous Waste Accumulation	22 CCR 66262.34(e) (1)	A generator may accumulate as much as 55 gallons of hazardous waste, or one quart of acutely or extremely hazardous waste in containers at or near any point of generation. Wastes may accumulate for up to one year, as long as under the control of the operator of the process generating the waste. Once 55 gallons have accumulated, the waste must be moved to the hazardous waste storage area within three days.	>1000 kg/mo. of hazardous waste, or >1 kg/mo. of acutely hazardous waste	Engineering Controls/ Administrative Controls	As needed
DTSC, CUPA	Hazardous Waste Containers	22 CCR 66265.176, 66265.177	Containers holding ignitable or reactive wastes shall be placed at least 15 m (50 ft) from facility property line. The plant will not place incompatible waste streams into the same container, and will separate wastes from nearby incompatible materials by dike, berm, wall, etc..	Applies to all hazardous waste generators	Engineering Controls/ Administrative Controls	As needed
DTSC, CUPA	Maintain Hazardous Waste Containers	22 CCR 66265.171-174, 66262.34	The facility shall maintain waste containers so that they are (a) in good condition, (b) compatible w/ contents; (c) closed, except when adding or removing has waste; (d) managed to avoid rupture or leaks; (e) inspected weekly; and (f) properly labeled.	Applies to all hazardous waste generators	Maintenance/ Calibration, Inspection, Engineering Controls/ Administrative Controls	As needed

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Hazardous Waste: Regulatory Overview

Why do these regulations exist?

Early Superfund sites were primarily hazardous waste management facilities.

Valley of the Drums

- Love Canal
- Valley of the Drums



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Historical Hazardous Substances



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Poor Chemical Management



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Regulatory Overview

- ❖ **Resource Conservation and Recovery Act (RCRA) Subtitle “C”**
- ❖ **RCRA** – (1976) 42 USC 6901 et seq. Subtitle C
- ❖ **Regulations** are promulgated in Title 40 Code of Federal Regulations (40 CFR Parts 260-280)
- ❖ **Enforced by U.S. EPA and states** that have received delegation to implement the federal program
- ❖ **Includes programs other than hazardous waste (USTs, municipal, and medical waste)**



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Regulatory Background

RCRA Subtitles

- ❖ Subtitle C - Hazardous Waste Management
- ❖ Subtitle D - Solid Waste Management
- ❖ Subtitle I - Underground Storage Tank

This training will address Subtitle C

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Regulations That Apply to Hazardous Waste Generators

- ❖ 40 CFR 260 - Hazardous Waste Management; General
- ❖ 40 CFR 261 - Identification and Listing of Hazardous Waste
- ❖ 40 CFR 262 - Generator Standards
- ❖ 40 CFR 263 - Transportation Standards
- ❖ 40 CFR 264 - Standards for Owners and Operators of Hazardous Waste Treatment, Storage & Disposal Facilities (TSDFs)
- ❖ 40 CFR 265 - Interim Status Standards for Owners & Operators of TSDFs

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Additional Hazardous Waste Regulations

- ❖ 40 CFR 266 - Specific Hazardous Waste
- ❖ 40 CFR 268 - Land Disposal Restrictions
- ❖ 40 CFR 270 - Hazardous Waste Permit Program
- ❖ 40 CFR 273 - Standards for Universal Waste
- ❖ 40 CFR 279 - Management of Used Oil
- ❖ 40 CFR 280 - Technical Standards for USTs

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Hazardous Waste Requirements

❖ Waste Characterization

❖ Generator Regulations

- Satellite Accumulation Areas
- Long-term Accumulation
- Container/tank Management
- Training
- Inspections
- Emergency Preparedness



❖ Waste Transportation and Disposal

❖ Pollution Prevention

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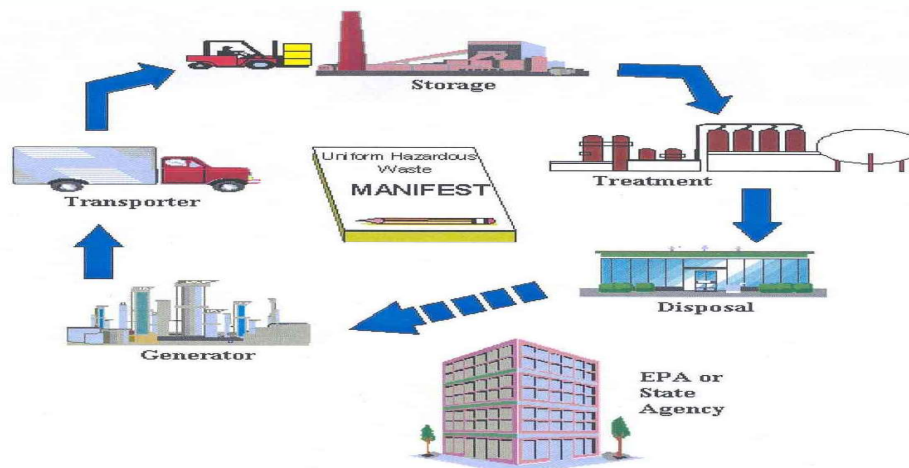


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RCRA – “Cradle to Grave”

Waste Management



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California Hazardous Waste Control Law (HWCL)

H&SC Section 25000 *et seq.* and "Title 22"

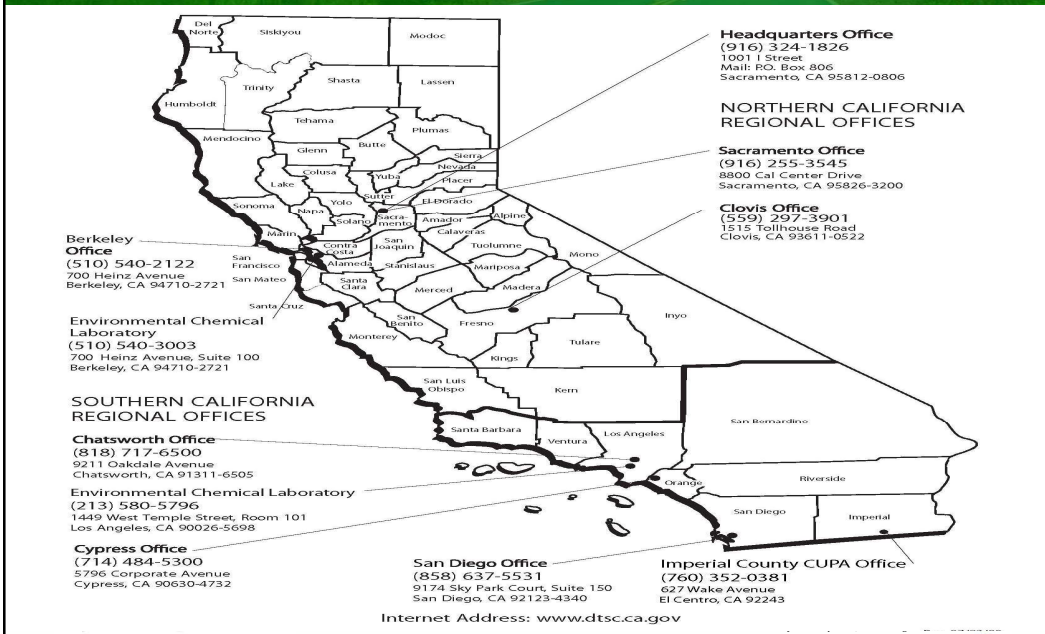
- ❖ HWCL first passed in 1977; amended many times
- ❖ Implemented and enforced by the Department of Toxic Substances control (DTSC)
- ❖ Regulations are codified in the California Code of Regulations (22 CCR 66260 *et seq.*)



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DTSC Offices



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Unified Hazardous Waste Program

See California Health & Safety Code Section 25404 *et seq.*

Merged together the following programs:

- Hazardous Waste Generators
- Tiered Permitting
- Underground Storage Tank Program
- Aboveground Storage Tank
- Hazardous Materials Management Program
- Risk Management Program



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What is a Hazardous Waste?



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Hazardous Waste Identification

Examples of “solid waste” that may be hazardous waste:

- Waste paint
- Expired shelf-life items that can no longer be used
- Used solvents too dirty to reuse
- Paint Chips and Used Sandblast Grit
- Spent Batteries



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Hazardous Waste Identification

Examples of activities that generate hazardous waste:

- Corrosion control operations that use chromate rust inhibitors
- Plating operations using cyanides
- Chemical and abrasive stripping of paint
- Painting operations for Aircraft, vehicle, & facility
- Photo and x-ray laboratories
- Used oil
- Wipes containing solvents
- Environmental & fuels laboratories



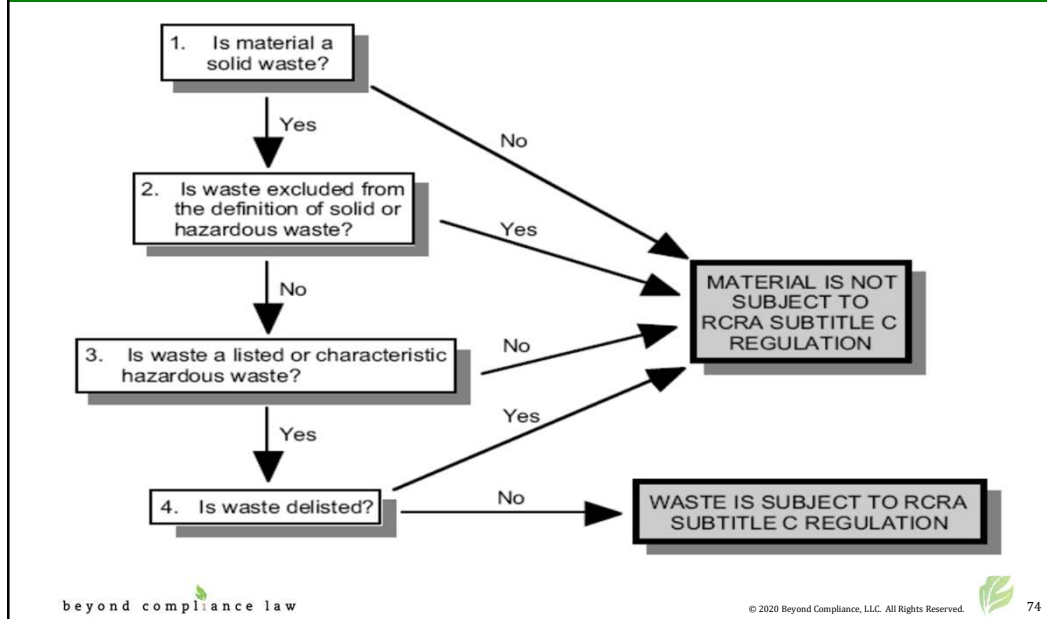
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RCRA Hazardous Waste Identification Process

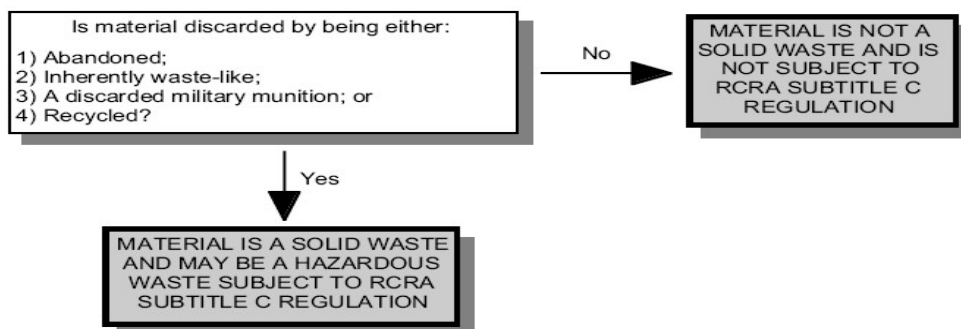


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Definition of "Solid Waste", "Waste" or "Generic" Waste

Is the material a "Solid Waste"?

- Any discarded material that is **not excluded or subject to a variance** (40 CFR 261.2)
- **"Solid"** = liquid, semi - solid, solid, or gaseous

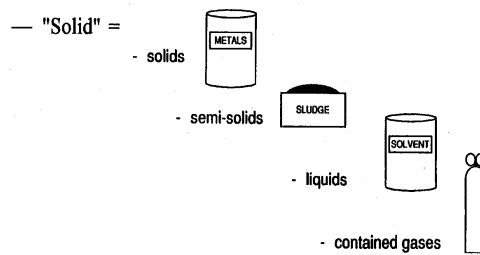


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Hazardous Waste Determination

"Waste," as defined by 42 USC Section 1004 (27):

- Any nonexempt discarded material/Not a Product
- "Solid" = liquid, semisolid, solid, or contained gas
- May use "process knowledge" or testing (40 CFR 262.11)



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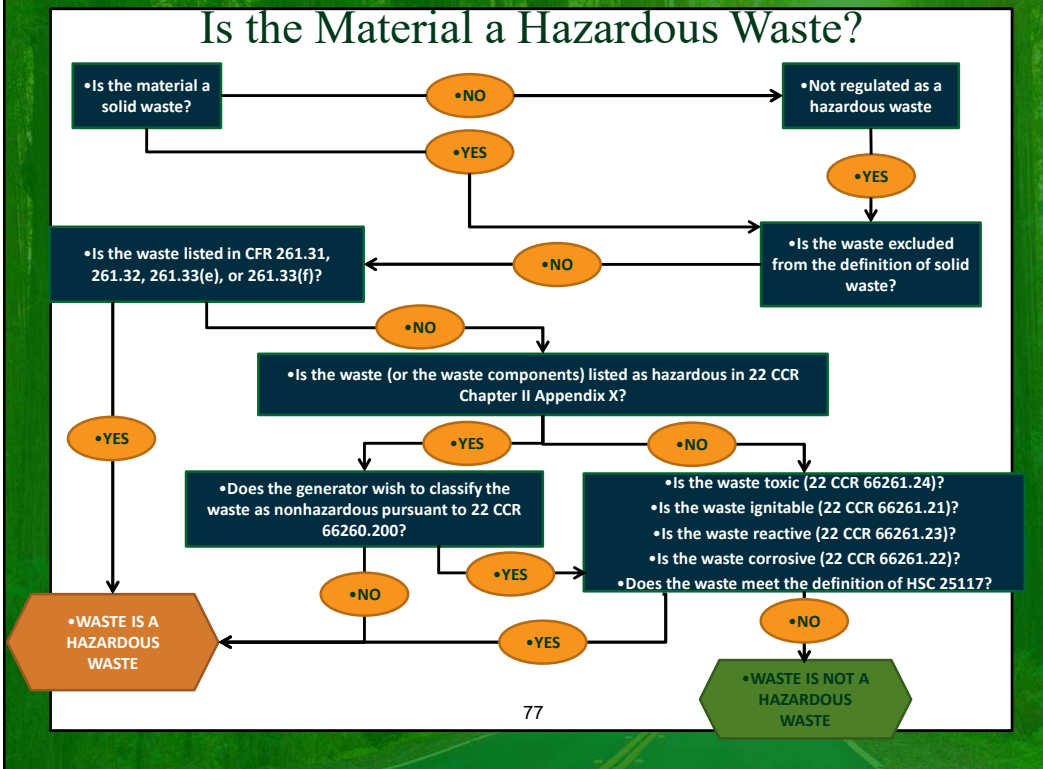
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Is the Material a Hazardous Waste?

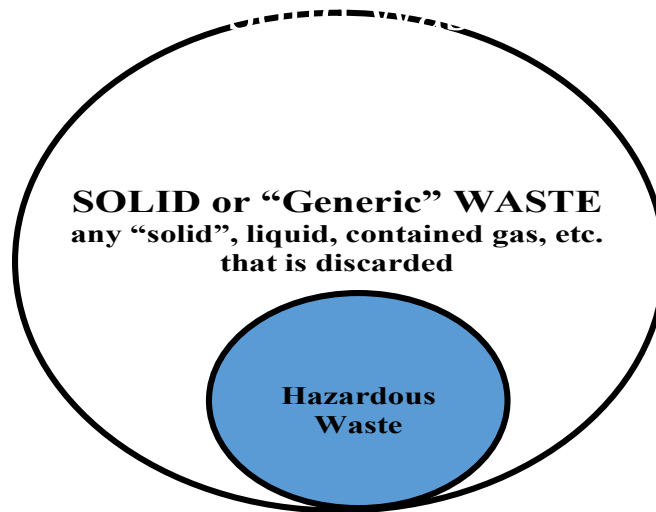


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Hazardous Waste is a Subset of



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Hazardous Waste Exclusions/Exemptions

(40 CFR 261.4(a) *et seq.*)

- Domestic sewage (not recognized in CA)
- Industrial waste discharge subject to NPDES permits (only the discharge)
- Irrigation return flows
- NRC-regulated
- In-situ mining
- Household wastes (not recognized in CA)
- Mining overburden returned to the mine site

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❖ Hazardous Waste Identification Exclusions/Exemptions (Cont.)

- "De minimis" quantities of listed commercial chemical products and intermediates discharged to a NPDES-permitted wastewater treatment plant or a NPDES-permitted POTW by a chemical manufacturer
- Fly ash waste, bottom ash waste, slag waste, and FGD waste from fossil fuel combustion
- Solid waste from ore extraction, beneficiation, and processing



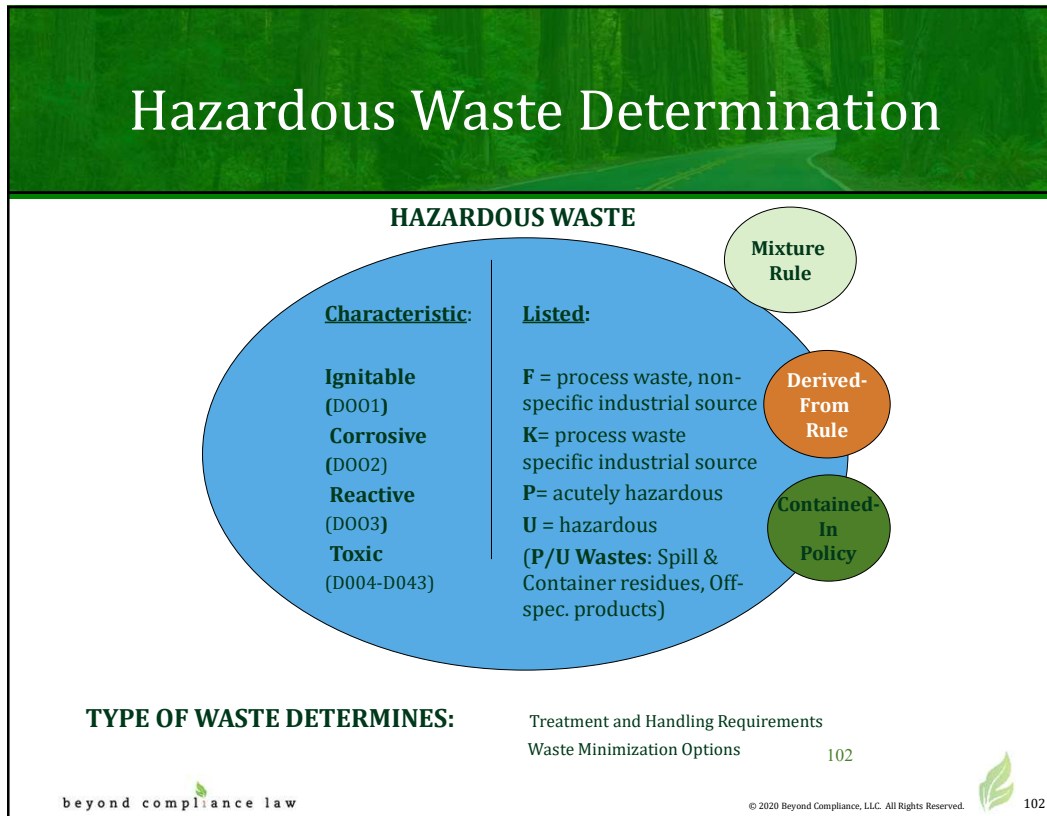
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Excluded Recyclable Materials and Permitting Exemption (H&SC §25143.2)

- Recyclable materials are subject to the requirements of the Hazardous Waste Control Act (HWCA) except under certain conditions
- These conditions have to do with (1) recycling method, and (2) type of material being recycled
- Two management schemes:
- "Excluded recyclable materials" (H&SC §25143.2(b),(d)) are excluded from classification as wastes and so are managed as hazardous materials
- Recyclable materials subject to H&SC §25143.2(c) are exempt from HW permitting requirements but must otherwise be managed as hazardous wastes



Hazardous Waste Determination



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Hazardous Waste Determination

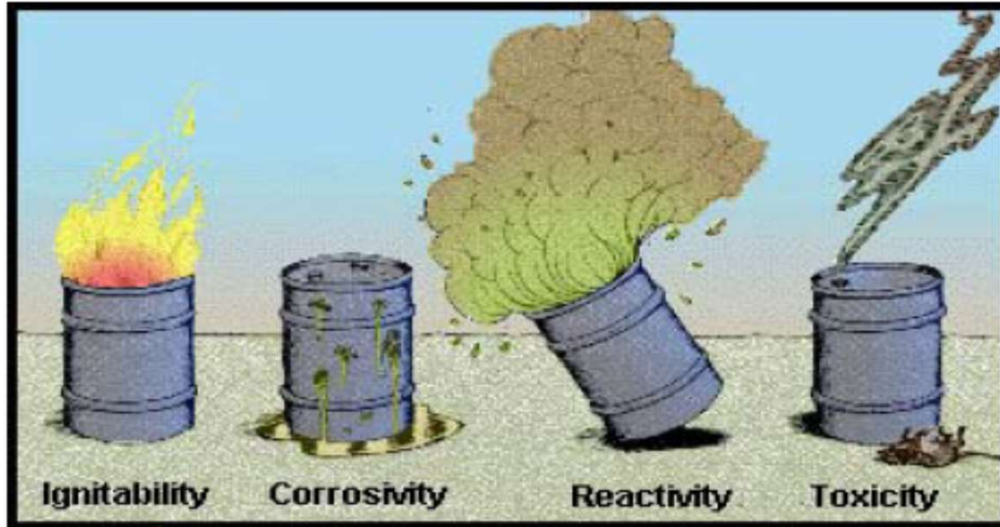
Hazardous Waste Overview: Characteristic vs. Listed

- ❖ Mixture Rule
- ❖ Derived-From Rule
- ❖ Contained-In Policy
- ❖ Type of Waste - determines:
 - Treatment and handling requirements (e.g., P wastes) and
 - Waste management options (e.g., land disposal restrictions)

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EPA Hazardous Waste Characteristics



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Hazardous Waste is a Subset of "Solid Waste"

SOLID or "Generic" WASTE
any "solid", liquid, contained gas, etc.
that is discarded

Hazardous Waste

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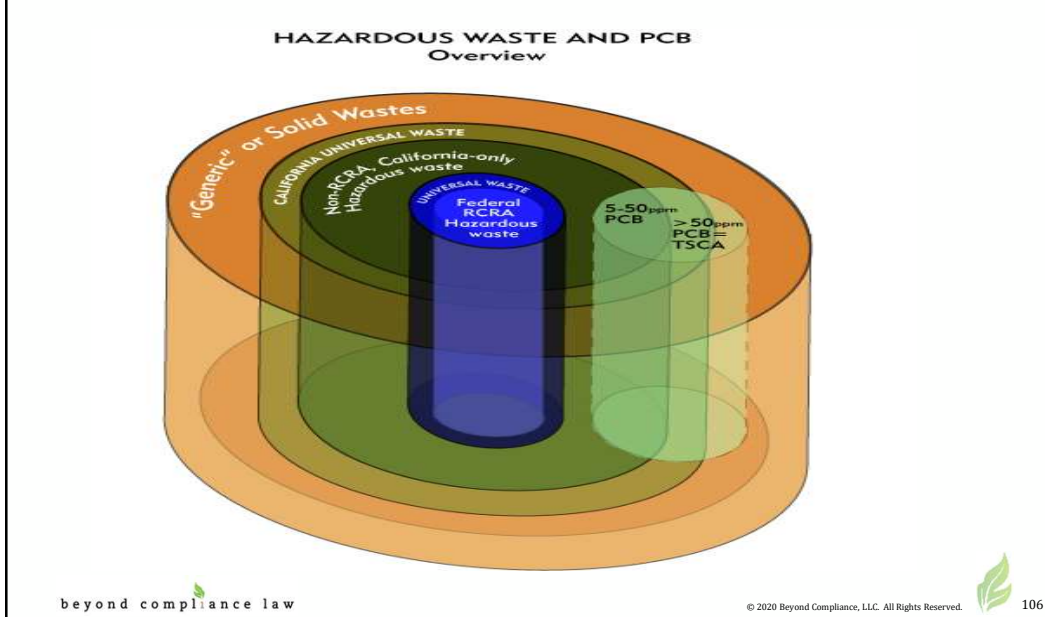
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Comparing California & Federal Hazardous Waste



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Hazardous Waste Identification

- ❖ Is the "generic waste" (i.e., "ALL" waste) regulated as a "hazardous waste"?
 - Listed or characteristic,
 - Mixture rule
 - Derived from rule, and/or
 - An environmental medium contaminated with (or "containing") a hazardous waste (e.g., soil, groundwater).
- ❖ May use "process knowledge" or testing (40 CFR 262.11/22 CCR 66262.11)

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Examples of Characteristic Wastes

D001 - Ignitables:

- Alcohols used in lab
- Strong oxidizing cleaners in industrial settings

D002 - Corrosives:

- Acids used for sample preservation
- Sodium hypochlorite (pH ≥ 12.5)



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Examples of Characteristic Wastes

D003 - Reactive:

- Aerosol Cans (still containing propellant)
- Lithium Batteries
- Elemental Phosphorous



D009 - Toxic for Mercury:

- Fluorescent Bulbs
- Mercury Thermostats



Hazardous Waste Identification

(40 CFR 261.21)

RCRA Characteristic Wastes:

Ignitability (D001)

- Liquids with flashpoints <math><140^{\circ}\text{F}</math>
- Solids capable of igniting under standard temperature and pressure
- Ignitable compressed gases
- Oxidizers



Flammable Liquid Classification

Regulatory Classification				
EPA ^a	OSHA ^b		DOT ^c	Flash Point
D001 Ignitable Hazardous Waste Flash Pt < 140°F	Class IA Flammable Liquid: Flash Pt ≤73°F Boiling Point < 100°F	Class IB Flammable Liquid: Flash Pt ≤73°F Boiling Point ≥100°F	Packaging Group II Flash Point < 73°F	Less than 73°F (23°C)
	Class IC Flammable Liquid: Flash Pt >73°F and < 100°F		Packaging Group III Flash Point ≥ 73°F and ≤ 141°F	73°F to 100°F (23°C to 37.8°C)
	Class II Combustible Liquids Flash Point ≥ 100°F and < 140°F			100°F to 140°F (37.8°C to 60°C)
	Class IIIA Combustible Liquids Flash Point ≥ 140°F and < 200°F			140°F to 200°F (60.°C to 93.3°C)
Nonhazardous Waste Flash Point ≥ 140°F			Combustible Liquids for Bulk Packaging Only^d Flash Point > 141°F and < 200°F	141°F to 200°F (60.5°C to 93.3°C)
	Class IIIB Combustible Liquids Flash Point ≥ 200°F		Not Regulated by DOT: Liquids with Flash Point ≥ 200°F	Greater than 200°F (93.3°C)

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Hazardous Waste Identification

(40 CFR 261.22/22 CCR 66261.22)

RCRA Characteristic Wastes:

Corrosivity (D002)

- Aqueous wastes with pH < or = 2 or > or = 12.5
- Liquid wastes that corrode steel at a rate >6.35 mm/year at 130° F
- California and federal definition are the same



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Hazardous Waste Identification

(40 CFR 261.23)

RCRA Characteristic Wastes:

Reactivity (D003)

- Normally unstable
- Reacts violently with water
- Forms explosive mixtures in water or generates toxic gases or fumes
- Cyanide- or sulfide-bearing wastes which generate toxic gases or fumes when exposed to pH conditions between 2-12.5
- Capable of detonation or explosive reaction

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FEDERAL (RCRA-TCLP) AND STATE (TITLE 22-STLC,TTLC) HAZARDOUS WASTE CRITERIA			
Inorganic Parameters/Metals (Methods: EPA 60108, 7000 Series)		Chlorophenoxy Acid Herbicides (Method: EPA 8151A)	
Parameters	TCLP mg/l STLC mg/l TTLC* mg/kg	Compound	TCLP mg/l STLC mg/l TTLC* mg/kg
Antimony	15 500	2,4-Dichlorophenoxyacetic acid	10.0 10 100
Arsenic	5.0 5.0	2,4,5-TP (Silvex)	1.0 1.0 10
Barium	100 100	Organochlorine Pesticides / PCBs (Method: EPA 8081A)	
Beryllium	0.75 75	Aldrin	0.14 1.4
Cadmium	1.0 1.0	Chlordane	0.03 0.25 2.5
Chromium	5 5 (560)	DDT/DDE/DDD	0.1 1.0
Cobalt	80 8,000	Dieldrin	0.8 8.0
Copper	25 2,500	Endrin	0.02 0.02 0.2
Lead	5.0 5.0	Hepachlor (& its Epoxide)	0.008 0.47 4.7
Mercury	0.2 0.2	Kepon	2.1 21
Molybdenum	350 3,500	Lindane	0.4 0.4 4.0
Nickel	20 2,000	Methoxychlor	10.0 10 100
Selenium	1.0 1.0	Mirex	0.5 5.0
Silver	5 500	Toxaphene	0.5 0.5 5.0
Thallium	7.0 700	Semi-Volatiles (Method: EPA 8270C)	
Vanadium	24 2,400	o-Cresol	200.0
Zinc	250 5,000	m-Cresol	200.0
Chromium (VI)	5 500	p-Cresol	200.0
Fluoride Salts	180 18,000	Cresols (Total)	200.0
Asbestos	1%	2,4-Dinitrotoluene	0.13
Volatiles (Method: EPA 8260B)		Hexachlorobenzene	0.13
Benzene	0.5	Hexachlorobutadiene	0.5
Carbon tetrachloride	0.5	Hexachloroethane	3.0
Chlorobenzene	100.0	Nitrobenzene	2.0
Chloroform	6.0	Pentachlorophenol	100.0 1.7 17
1,4-Dichlorobenzene	7.5	Pyridine	5.0
1,2-Dichloroethane	0.5	2,4,5-Trichlorophenol	400.0
1,1-Dichloroethylene	0.7	2,4,6-Trichlorophenol	2.0
Methyl ethyl ketone (MEK)	200.0	Miscellaneous (Methods: EPA 8280*, CADHS-LUFT/7420**)	
Tetrachloroethylene (PCE)	0.7	Dioxin (2,3,7,8-TCDD)*	0.001 0.01
Trichloroethylene (TCE)	0.5 204 2,040	Organic Lead Compounds**	13
Vinyl chloride	0.2	See Sec 22-66261.27 (a) (7) for Additional Toxicity Compound Criteria. Title (26) 22 Toxicity Criteria Section 22-66261.24	
* Values expressed as wet weight † Excluding barium sulfate.			
HAZARDOUS WASTE CHARACTERISTICS	Ignitability (40 CFR 261.21) (T22: 22-66261.21)	Matrix: Liquid Method: ASTM D-93	Criteria: Exhibits the characteristic of ignitability: if it is a liquid, and has a flash point <60°C (140°F). Aqueous solutions containing >24% alcohol by volume are considered ignitable and do not require flash point testing.
	Corrosivity (40 CFR 261.22) (T22: 22-66261.22)	Matrix: Liquid Method: EPA 9040 EPA 1110, NACE	Criteria: Exhibits the characteristic of corrosivity if it is aqueous and has a pH ≤ 2 or ≥ 12.5 (Sec 260.20 and 260.21) if it corrodes steel (SAE: 1020) at rate ≥0.36 mm or 0.250 in. per year at a test temperature of 55°C (133°F).
	Reactivity (40 CFR 261.22) (T22: 22-66261.22)	Matrix: Solid Method: EPA 9045 SW846, Chapter 7 Sec 7.3.3	Criteria: Exhibits the characteristic of reactivity if the waste has any of the following properties: 1. It is normally unstable and readily undergoes violent change without detonating. 2. It reacts violently with water. 3. It forms potentially explosive mixtures with water. 4. When mixed with water, it generates toxic gases, vapors, or fumes in a quantity sufficient to present a danger to human health or environment. 5. It is a cyanide or sulfide bearing waste which, when exposed to pH conditions between 2 and 12.5 can generate toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment. The current EPA guidance level is: Total releasable cyanide: 250 mg HCN/kg waste. The current EPA guidance level is: Total releasable sulfide: 500 mg H ₂ S/kg waste. 6. It is readily capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement. 7. It is readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure. 8. It is a forbidden explosive, as defined in 49 CFR 173.51 or a class A or B explosive, as defined in 49 CFR 173.53 and 173.56.
TOXICITY Fish (Title 26 sec 66261.24(6)) SMMW 18th Ed A waste, or material is toxic and hazardous if (6) has an acute aquatic 96-Hour LC50 less than 500µM/L.			
NOTE: Criteria and limits are abbreviated for quick reference purposes only. Specific sources should always be referenced for a detailed, complete and up-to-date listing of regulatory criteria.			
		Laboratory Location: 7446 Lincoln Way Garden Grove, CA 92841-1432 For information, please contact Sales Department at: t: (714) 895-6494, f: (714) 894-7501 or us26_sales@eurofins.com Revision Date: 06/18/2012	

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Hazardous Waste Identification

Maximum Concentration of Contaminants for the Toxicity Characteristic Leaching Procedure

Contaminant	EPA Hazardous Waste No.	CAS Number	Regulatory Limit (mg/l)
Arsenic	D004	7440-38-2	5.0
Barium	D005	7440-39-3	100.0
Benzene	D018	71-43-2	0.5
Cadmium	D006	7440-43-9	1.0
Carbon Tetrachloride	D019	56-23-5	0.5
Chlordane	D020	57-74-9	0.03
Chlorobenzene	D021	108-90-7	100.0
Chloroform	D022	67-66-3	6.0
Chromium	D007	7440-47-3	5.0
o-Cresol	D023	95-48-7	200.0
m-Cresol	D024	108-39-4	200.0
p-Cresol	D025	+95-48-7, 108-39-4, 106-44-5	200.0
Cresol	D026	*****	200.0
2,4-D Acid	D016	94-75-7	10.0
1,4-Dichlorobenzene	D027	106-46-7	7.5
1,2-Dichloroethane	D028	107-06-2	0.5

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Hazardous Waste Identification

1,1-Dichloroethylene	D029	75-35-4	0.7
2,4-Dinitrotoluene	D030	121-14-2	0.13
Endrin	D012	72-20-8	0.02
Heptachlor (and its epoxides)	D031	76-44-8	0.008
Hexachlorobenzene	D032	118-74-1	0.13
Hexachlorobutadiene	D033	87-68-3	0.5
Hexachloroethane	D034	67-72-1	3.0
Lead	D008	7439-92-1	5.0
Lindane	D013	58-89-9	0.4
Mercury	D009	7439-97-6	0.2
Methoxychlor	D014	72-43-5	10.0
Methyl Ethyl Ketone	D035	78-93-3	200.0
Nitrobenzene	D036	98-95-3	2.0
Pentachlorophenol	D037	87-86-5	100.0
Pyridine	D038	110-86-1	5.0
Selenium	D010	7782-49-2	1.0
Silver	D011	7440-22-4	5.0
Tetrachloroethylene	D039	127-18-4	0.7
Toxaphene	D015	8001-35-2	0.5
Trichloroethylene	D040	79-01-6	0.5
2,4,5-Trichlorophenol	D041	95-95-4	400.0
2,4,6-Trichlorophenol	D042	88-06-2	2.0
2,4,5-TP (Silvex)	D017	93-72-1	1.0
Vinyl Chloride	D043	75-01-4	0.2

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The Leachable / Mobile Fraction Threatens Groundwater

The diagram illustrates a waste pile with two types of particles: black dots representing non-leachable waste and green circles representing leachable waste. A horizontal blue line represents the water table. Below the water table, green circles are shown moving to the left, indicating groundwater flow. Labels include:

- NON-LEACHABLE (pointing to black dots)
- LEACHABLE (pointing to green circles)
- Water Table (pointing to the blue line)
- GROUNDWATER FLOW (pointing to the left with a green arrow)

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Hazardous Waste Label

The label is yellow with a black border and contains the following text:

- HAZARDOUS WASTE**
- STATE & FEDERAL LAW PROHIBITS IMPROPER DISPOSAL. IF FOUND, CONTACT THE NEAREST POLICE OR PUBLIC SAFETY AUTHORITY OR THE U.S. ENVIRONMENTAL PROTECTION AGENCY OR THE CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL.
- GENERATOR INFORMATION: NAME, ADDRESS, CITY, STATE, ZIP, PHONE.
- EPA /MANIFEST ID NO. / DOCUMENT NO.
- EPA WASTE NO., CA WASTE NO., ACCUMULATION START DATE.
- CONTENTS, COMPOSITION: PHYSICAL STATE (SOLID, LIQUID), HAZARDOUS PROPERTIES (FLAMMABLE, TOXIC, CORROSIVE, REACTIVITY, OTHER).
- DOT PROPER SHIPPING NAME AND UN OR NA NO. WITH PREFIX.
- HANDLE WITH CARE!**
- CONTAINS HAZARDOUS OR TOXIC WASTES

This part is very important

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Federal Hazardous Waste Labeling/Marking

Containers of hazardous waste must/should be labeled with the following information:

1. Accumulation start date (required in California)
2. The words "hazardous waste" (required)
3. **NEW** Hazardous properties of the waste
 - Ignitable corrosive, reactive, toxic) or
 - Hazard communication in line with DOT or
 - Hazardous pictogram (GHS or NFPA)
1. Composition and physical state of the waste (recommended)
2. Name and address of the generator (DOT shipping requirement)

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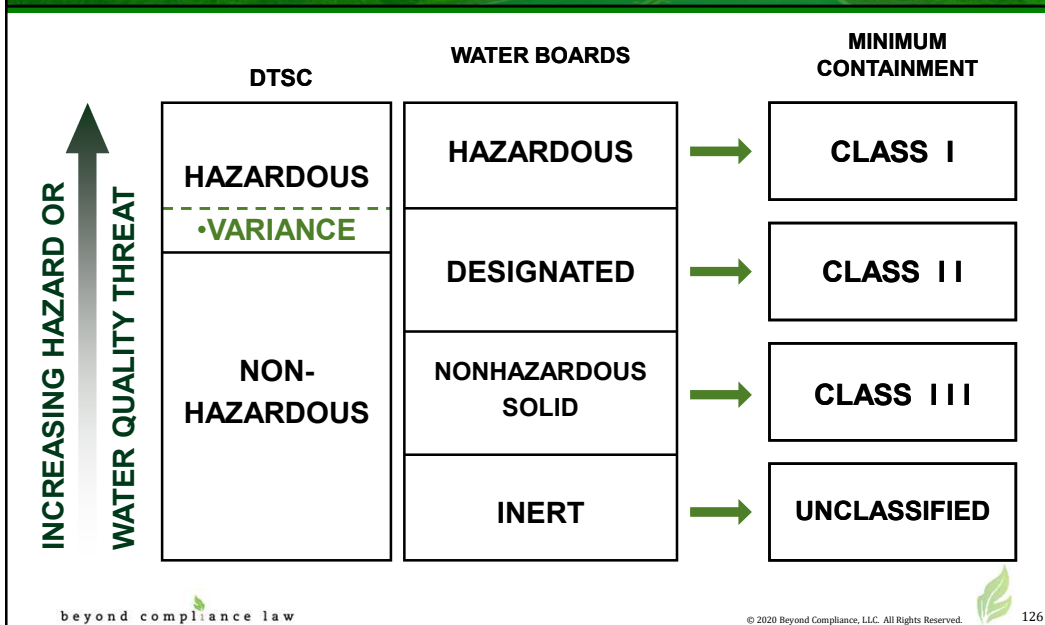


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California Waste and Unit Classifications



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BRIEF COMPARISON OF FEDERAL VS. CALIFORNIA CLASSIFICATION SCHEMES

California	Agency	Federal
CalEPA Department of Toxic Substances Control		Environmental Protection Agency
Hazardous Waste Control Law Hazardous Substances Account Act Hazardous Substance Cleanup Bond Act of 1984	Law	RCRA, HSWA CERCLA, SARA TSCA
22 CCR Division 4.5 HSC § 25117	Regs Definition	40 CFR Parts 124, 260-280 RCRA 1004 (5); 40 CFR 261.4 exclusions
1. Ignitability 2. Corrosivity a) liquid b) solid 3. Reactivity 4. Toxicity a) STLC 19 Inorganics 20 organics (14p) using the Waste Extraction Test b) TTLC 20 Inorganics 18 organics c) acute oral LD ₅₀ d) acute inhalation LC ₅₀ e) acute dermal LD ₅₀ f) aquatic 96-hour LC ₅₀ g) 15 carcinogen at 0.001% h) "generic clause" i) used oil j) PCB >5550 ppm	← C → ← H → ← A → ← R → ← A → C T E I S T I C S	1. Ignitability 2. Corrosivity a) liquid b) solid 3. Reactivity 4. TCLP a) 9 Inorganics b) 31 organics
Referenced in 22 CCR Chapter 11 Article 4	Lists	F.K.P.U.
RCRA Hazardous Waste Extremely Hazardous Waste non-RCRA Hazardous Waste Special Waste	Categories	Hazardous Waste Acute Hazardous Waste
22 CCR § 66260.210	Variance	40 CFR 260.20, 260.22

CCR= California Code of Regulations
HSC = California Health and Safety Code
STLC = Soluble Threshold Limit Concentration
TTLC = Total Threshold Limit Concentration

RCRA = Resource Conservation and Recovery Act
CFR = Code of Federal Regulations
TCLP = Toxicity Characteristic Leaching Procedure

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Hazardous Waste Identification

Listed hazardous waste:

- **F Wastes:** Non-industry specific waste sources (*from processes*)
- **K Wastes:** Industry specific waste sources (*from processes*)
- **U & P Wastes:** Commercial chemical products (*not from a process*)



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Hazardous Waste Identification

(40 CFR Section 261.31)

RCRA Listed Wastes

"F" wastes are from nonspecific sources:

- Spent solvents and solvent mixtures
- Certain wastes from electroplating and metal heat treating operations
- Dioxin-containing wastes

Spent **chlorinated solvents** used for **degreasing** that have the F001 code:

- Trichloroethylene,
- 1,1,1-Trichloroethane,
- Tetrachloroethylene,
- Methylene Chloride,
- Carbon Tetrachloride, and
- Chlorinated Fluorocarbons (Freons)

Same **chlorinated solvents** used for **any other purpose** are F002

- **Example:** methylene chloride used as a paint stripper

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Hazardous Waste Identification

Spent **nonhalogenated solvents** are also F-listed hazardous wastes:

- F003: xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol;
- F004: cresols, cresylic acid, and nitrobenzene,
- F005: toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol, and 2-nitropropane

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Hazardous Waste Identification

Examples of F-listed Wastes

- Spent solvents used for cleaning/degreasing that contain materials such as MEK and trichloroethane (F005)
- Paint wastes, including thinners and paint strippers (F002),
- Spent cyanide solution from electroplating operations (F007)
- Wastewater treatment sludge from electroplating operations (F006)
- Spent cyanide plating baths (F007)

F-Listed Solvent Rags:

- F001 - Trichloroethylene used in Degreasing
- F002 - Trichloroethylene used in other operations
- F003 - Xylene, acetone, methanol, etc..
- F005 - Methyl ethyl ketone, toluene, etc..

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Spent solvents (F001 – F005)

- F001** These spent halogenated solvents used in degreasing; spent solvent mixtures used in degreasing containing, before use, a total of 10 percent or more by volume of these solvents or the solvents listed in F002, F004, or F005, and still bottoms from the reclamation of these spent solvent and spent solvent mixtures used in degreasing. (T)¹
- carbon tetrachloride
 - chlorinated fluorocarbons
 - methylene chloride
 - tetrachloroethylene, also called perchloroethylene
 - 1,1,1-trichloroethane
 - trichloroethylene, also called 'TCE'
- F002** These spent halogenated solvents; spent solvent mixtures containing, before use, a total of 10 percent or more by volume of these solvents or the solvents listed in F001, F004, or F005, and still bottoms from the reclamation of these spent solvent and spent solvent mixtures. (T)¹
- chlorobenzene
 - methylene chloride
 - ortho-dichlorobenzene
 - tetrachloroethylene, also called 'perchloroethylene'
 - 1,1,1-trichloroethane
 - 1,1,2-trichloroethane
 - trichloroethylene, also called 'TCE'
 - trichlorofluoromethane
 - 1,1,2-trichloro-1,2,2-trifluoroethane
- F003** These spent non-halogenated solvents; spent solvent mixtures containing, before use, either only these non-halogenated solvents, or one or more of these non-halogenated solvents and a total of 10 percent or more by volume of the solvents listed in F001, F002, F004, or F005, and still bottoms from the reclamation of these spent solvent and spent solvent mixtures. (I)^{1,2}
- acetone
 - cyclohexane
 - ethyl acetate
 - ethyl benzene
 - ethyl ether
 - methanol
 - methyl isobutyl ketone
 - n-butyl alcohol
 - xylene
- F004** These spent non-halogenated solvents; spent solvent mixtures containing, before use, a total of 10 percent or more by volume of these solvents or the solvents listed in F001, F002, or F005, and still bottoms from the reclamation of these spent solvent and spent solvent mixtures. (T)¹
- cresols and cresylic acid
 - nitrobenzene

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F005	These spent non-halogenated solvents; spent solvent mixtures containing, before use, a total of 10 percent or more by volume of these solvents or the solvents listed in F001, F002, or F004, and still bottoms from the reclamation of these spent solvent and spent solvent mixtures. (I,T) ¹
	<ul style="list-style-type: none"> • benzene • carbon disulfide • 2-ethoxyethanol • isobutanol • methyl ethyl ketone, also called 'MEK' • 2-nitropropane • Pyridine • toluene
Metal treating (F006-F012 and F019)	
F006	All wastewater treatment sludges from electroplating operations except those from these processes. However, these sludges may still be hazardous for a hazardous waste characteristic. (T)
	<ul style="list-style-type: none"> • sulfuric acid anodizing of aluminum • tin plating of carbon steel • zinc plating (segregated basis) on carbon steel • aluminum or zinc aluminum plating on carbon steel • cleaning/stripping associated with tin, zinc, and aluminum plating on carbon steel • chemical etching and milling of aluminum
F007	Spent cyanide plating bath solutions from electroplating operations. (R,T)
F008	Plating bath sludges from the bottom of plating baths from electroplating operations where cyanides are used in the process. (R,T) ³
F009	Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process. Sludges formed in electroplating stripping and cleaning bath solution tanks where cyanides are used in the process are also included. (R,T) ³
F010	Quenching bath residues from oil baths from metal heat-treating operations where cyanides are used in the process. (R,T) ³
F011	Spent cyanide solutions from salt bath pot cleaning from metal heat-treating operations. (R,T)
F012	Quenching waste water treatment sludges from metal heat treating operations where cyanides are used in the process. (R,T) ³
F019	Wastewater treatment sludges from the chemical conversion coating of aluminum except from zirconium phosphating in aluminum can washing when such phosphating is an exclusive conversion coating process. (T) ⁴
Manufacturing and processing (F020-F026)	
F020	Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tri- or tetrachlorophenol, or of intermediates used to produce their pesticide derivatives. (H) ^{5,6}

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F021	Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of pentachlorophenol, or of intermediates used to produce its derivatives. (H) ⁵																						
F022	Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tetra-, penta-, or hexachlorobenzene under alkaline conditions. (H) ⁵																						
F023	Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production of materials on equipment previously used for the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tri- and tetrachlorophenols. (H) ^{5,7}																						
F024	Process wastes from the production of chlorinated aliphatic hydrocarbons with carbon chain lengths from one through five by free radical catalyzed processes, with any amount and position of chlorine substitution. Process wastes include but are not limited to, distillation residues, heavy ends, tars, and reactor clean-out wastes, but do not include F025 wastes. (T) ⁸																						
F025	Condensed light ends, spent filters and filter aids, and spent desiccant wastes from the production of chlorinated aliphatic hydrocarbons with carbon chain lengths from one through five by free radical catalyzed processes, with any amount and position of chlorine substitution. (T)																						
F026	Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production of materials on equipment previously used for the manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tetra-, penta-, or hexachlorobenzene under alkaline conditions. (H) ⁵																						
Discarded unused products (F027)																							
F027	Discarded unused formulations containing tri-, tetra-, or pentachlorophenol or discarded unused formulations containing compounds derived from these chlorophenols. (H) ^{5,9}																						
	<table border="0"> <tr> <td>F027 includes, but is not limited to:</td> <td>CAS Registry #</td> </tr> <tr> <td>• Acetic acid, (2,4,5-trichlorophenoxy)-</td> <td>93-76-5</td> </tr> <tr> <td>• Pentachlorophenol or Phenol, pentachloro-</td> <td>87-86-5</td> </tr> <tr> <td>• Phenol, 2,3,4,6-tetrachloro-</td> <td>58-90-2</td> </tr> <tr> <td>• Phenol, 2,4,5-trichloro-</td> <td>95-95-4</td> </tr> <tr> <td>• Phenol, 2,4,6-trichloro-</td> <td>88-06-2</td> </tr> <tr> <td>• Silvex (2,4,5-TP) or Propanoic acid, 2-(2,4,5-trichlorophenoxy)-</td> <td>93-72-1</td> </tr> <tr> <td>• 2,4,5-T</td> <td>93-76-5</td> </tr> <tr> <td>• 2,3,4,6-Tetrachlorophenol</td> <td>58-90-2</td> </tr> <tr> <td>• 2,4,5-Trichlorophenol</td> <td>95-95-4</td> </tr> <tr> <td>• 2,4,6-Trichlorophenol</td> <td>88-06-2</td> </tr> </table>	F027 includes, but is not limited to:	CAS Registry #	• Acetic acid, (2,4,5-trichlorophenoxy)-	93-76-5	• Pentachlorophenol or Phenol, pentachloro-	87-86-5	• Phenol, 2,3,4,6-tetrachloro-	58-90-2	• Phenol, 2,4,5-trichloro-	95-95-4	• Phenol, 2,4,6-trichloro-	88-06-2	• Silvex (2,4,5-TP) or Propanoic acid, 2-(2,4,5-trichlorophenoxy)-	93-72-1	• 2,4,5-T	93-76-5	• 2,3,4,6-Tetrachlorophenol	58-90-2	• 2,4,5-Trichlorophenol	95-95-4	• 2,4,6-Trichlorophenol	88-06-2
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• 2,4,5-T	93-76-5																						
• 2,3,4,6-Tetrachlorophenol	58-90-2																						
• 2,4,5-Trichlorophenol	95-95-4																						
• 2,4,6-Trichlorophenol	88-06-2																						
Contaminated soil treatment residues (F028)																							
F028	Residues resulting from the incineration or thermal treatment of soil contaminated with hazardous waste codes F020, F021, F022, F023, F026, and F027. (T)																						

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Wood preserving (F032-F035)

- F032** Wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that currently use or have previously used chlorophenolic formulations. (T)^{10,11}
- F034** Wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use creosote formulations. (T)¹¹
- F035** Wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use inorganic preservatives containing arsenic or chromium. (T)¹¹

Petroleum refinery (F037-F038)

- F037** Petroleum refinery primary oil/water/solids separation sludge—Any sludge generated from the gravitational separation of oil/water/solids during the storage or treatment of process wastewaters and oily cooling wastewaters from petroleum refineries. Such sludges include, but are not limited to, those generated in oil/water/solids separators; tanks and impoundments; ditches and other conveyances; sumps; and stormwater units receiving dry weather flow. This listing includes residuals generated from processing or recycling oil-bearing hazardous secondary materials excluded in another state under 40 CFR 261.4(a)(12)(i) imported for processing into Minnesota, if those residuals are to be disposed of. (T)^{12,13}
- F038** Petroleum refinery secondary (emulsified) oil/water/solids separation sludge—Any sludge and/or float generated from the physical and/or chemical separation of oil/ water/solids in process wastewaters and oily cooling wastewaters from petroleum refineries. Such wastes include, but are not limited to, all sludges and floats generated in: induced air flotation (IAF) units, tanks and impoundments, and all sludges generated in DAF units. (T)^{12,14}

Landfill leachate (F039)

- F039** Leachate (liquids that have percolated through land disposed wastes) resulting from the disposal of more than one restricted waste listed as a F-, K-, P- or U-listed hazardous waste. Leachate resulting from the disposal of one or more hazardous wastes bearing the following waste codes which is not mixed with any other hazardous wastes retains its original codes and is not F039: F020, F021, F022, F026, F027, and F028. (T)

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Hazardous Waste Identification

RCRA Listed Wastes

“K” wastes from specific sources

- Wood preservation
- Inorganic pigments
- Organic/inorganic chemicals
- Pesticides
- Petroleum refining
- Veterinary pharmaceuticals

40 CFR Section 261.32

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P-list table			
Waste code	CAS registry #	Generic listed name	Listing reason
P002	591-08-2	1-Acetyl-2-thiourea	H
P003	107-02-8	Acrolein	H
P070	116-06-3	Aldicarb	H
P203	1646-88-4	Aldicarb sulfone	H
P004	309-00-2	Aldrin	H
P005	107-18-6	Allyl alcohol	H
P006	20859-73-8	Aluminum phosphide	R, T
P007	2763-96-4	5-(Aminomethyl)-3-isoxazolol	H
P008	504-24-5	4-Aminopyridine	H
P009	131-74-8	Ammonium picrate	R
P119	7803-55-6	Ammonium vanadate	H
P010	7778-39-4	Arsenic acid H ₃ AsO ₄	H
P011	1303-28-2	Arsenic pentoxide	H
P012	1327-53-3	Arsenic trioxide	H
P054	151-56-4	Aziridine	H
P067	75-55-8	Aziridine, 2-methyl-	H
P013	542-62-1	Barium cyanide	H
P028	100-44-7	Benzyl chloride	H
P015	7440-41-7	Beryllium powder	H
P017	598-31-2	Bromoacetone	H
P018	357-57-3	Brucine	H
P021	592-01-8	Calcium cyanide	H
P127	1563-66-2	Carbofuran	H
P022	75-15-0	Carbon disulfide	H
P189	55285-14-8	Carbosulfan	H
P023	107-20-0	Chloroacetaldehyde	H
P024	106-47-8	p-Chloroaniline	H
P029	544-92-3	Copper cyanide	H
P030	-----	Cyanides (soluble cyanide salts), not otherwise specified	H
P031	460-19-5	Cyanogen	H
P033	506-77-4	Cyanogen chloride	H
P016	542-88-1	Dichloromethyl ether	H
P036	696-28-6	Dichlorophenylarsine	H
P037	60-57-1	Dieldrin	H
P038	692-42-2	Diethylarsine	H
P043	55-91-4	Diisopropylfluorophosphate (DFP)	H
P044	60-51-5	Dimethoate	H
P191	644-64-4	Dimetilan	H
P020	88-85-7	Dinoseb	H
P039	298-04-4	Disulfoton	H
P049	541-53-7	Dithiobiuret	H
P050	115-29-7	Endosulfan	H
P088	145-73-3	Endothall	H
P051	72-20-8	Endrin & metabolites	H
P042	51-43-4	Epinephrine	H

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U List			
Waste code	CAS Registry #	Generic name	Reason
U394	30558-43-1	A2213	(T)
U001	75-07-0	Acetaldehyde	(I) ¹
U034	75-87-6	Acetaldehyde, trichloro-	(T)
U187	62-44-2	Acetamide, N-(4-ethoxyphenyl)-	(T)
U005	53-96-3	Acetamide, N-9H-fluoren-2-yl-	(T)
U240	94-75-7	Acetic acid, (2,4-dichlorophenoxy)-, salts & esters	(T) ²
U112	141-78-6	Acetic acid ethyl ester	(I) ¹
U144	301-04-2	Acetic acid, lead(2+) salt	(T)
U214	563-68-8	Acetic acid, thallium(1+) salt	(T)
U002	67-64-1	Acetone	(I) ¹
U003	75-05-8	Acetonitrile	(I,T)
U004	98-86-2	Acetophenone	(T)
U005	53-96-3	2-Acetylaminofluorene	(T)
U006	75-36-5	Acetyl chloride	(C,R,T)
U007	79-06-1	Acrylamide	(T)
U008	79-10-7	Acrylic acid	(I) ¹
U009	107-13-1	Acrylonitrile	(T)
U011	61-82-5	Amitrole	(T)
U012	62-53-3	Aniline	(I,T)
U136	75-60-5	Arsinic acid, dimethyl-	(T)
U014	492-80-8	Auramine	(T)
U015	115-02-6	Azaserine	(T)

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Hazardous Waste Identification

Commercial chemical products, off-spec products, OR container or spill residues from chemical products that:

- Have NOT been used and
- Have ONLY ONE ACTIVE ingredient

There are 2 lists of commercial chemical products:

- P - Listed - Acutely Toxic
- U-Listed - Toxic, Ignitable, Corrosive, or Reactive



P-List

P-list examples:

- P042: Epinephrine
- P108: Strychnine
- P076: Nitric Oxide
- P110: Tetraethyl lead

The listed chemical must be the sole active ingredient in a commercial chemical product, off-spec product, or container residue



Hazardous Waste Identification

RCRA Listed Wastes

- "P"- and "U"-listed chemicals become hazardous wastes when "discarded", applied to the land, or burned as fuel
- "P" and "U" wastes do not include manufacturing process wastes
- P-listed chemicals may be accumulated at the SAP in quantities not exceeding 1 quart

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U-List

U-list examples:

- U002: Acetone
- U061: DDT
- U228 Trichloroethylene (TCE)
- U211: Carbon tetrachloride
- U133: Hydrazine
- Specified pharmaceuticals

Examples of commercial chemical products (U or P):

- Outdated laboratory chemicals
- Certain expiration-dated hospital pharmacy wastes

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Hazardous Waste Determination Examples

HAZARDOUS WASTE DETERMINATION EXAMPLES



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More Stringent CA Requirements for Waste ID

“California-only” hazardous wastes (wastes that are not hazardous under the federal definition); otherwise known as non-RCRA wastes. These include:

- California-only listed wastes
- Used oil (health and safety code section 25250) presumed to be HW
- Mercury switches
- Wastes exceeding LD50 or LC50
- Wastes that are hazardous as a result of soluble threshold limit concentration (STLC), or total threshold limit concentration (TTLC), while not exceeding federal TCLP values



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Hazardous Waste Identification

- ❖ Characteristic wastes
- ❖ Listed wastes
- ❖ Waste mixtures
- ❖ Waste residues

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Hazardous Waste Determination

"Mixture" Rule (40 CFR 261.3(a)(2))

"Derived From" Rule (40 CFR 261.3(c)(2))

Solid waste generated from treatment, storage, or disposal of hazardous waste is a hazardous waste

Includes:

- Treatment residue (sludge or ash)
- Spill residues
- Emission control dust
- Leachate

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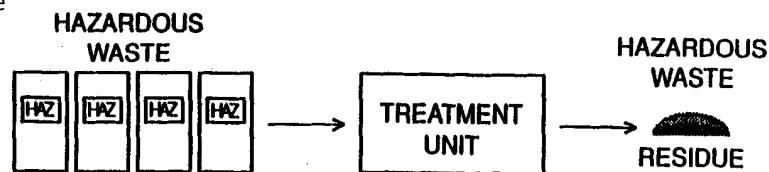
The Derived-From Rule

(40 CFR 261.3(c)(2))

Solid Waste Generated from Treatment, Storage, or Disposal of Hazardous Waste is a Hazardous Waste

Includes:

- Treatment Residue (Sludge or Ash)
- Spill Residues
- Emission Control Dust
- Leachate



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Hazardous Waste Identification Waste

Mixtures

HW listed for Ignitability (I), Corrosivity (C), or Reactivity (R), + solid waste = Hazardous Waste

- Unless resulting mixture is not I, C, or R

HW listed for “acute” (H) or Toxicity (T) + solid waste = Hazardous waste unless delisted



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Hazardous Waste Debris Rule

Debris = solid material exceeding a 60 mm particle size intended for disposal and that is

- A manufactured object, or plant and animal matter, or geologic material
- **Hazardous Waste Debris** =
 - Debris that contains a listed hazardous waste (HW), or
 - that exhibits a characteristic of HW

The following are not debris: Any material for which a specific treatment standard is provided

- e.g., lead acid batteries, cadmium batteries, and radioactive lead solids
- Process residuals; and
- e.g., smelter lag, residues from the treatment of waste, wastewater, sludges, or air emission residues
- Intact containers of hazardous waste that are not ruptured and that retain at least 75% of their original volume

A mixture of debris that has not been treated to the standards provided by 40 CFR 268.45 & other material is subject to regulation as debris if the mixture is comprised primarily of debris, by volume, based on visual inspection

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Contained-in Policy/HW Debris Rule

(40 CFR 261.3(f)(2))

- ❖ Environmental media which contains listed hazardous wastes
- ❖ Does not include debris (solid material larger than 60 mm particle size; see 40 CFR 268.2)
- ❖ Hazardous waste identification rule (HWIR) allows flexibility in managing contaminated “staging piles”

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Treatment in Tanks & Containers (Federal only)

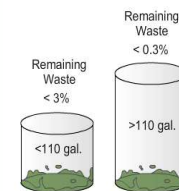
- ❖ On-site generator may treat hazardous waste in containers, tanks, or containment buildings (**within 90 days or 180 days**) Except:
 - ❖ No dilution (prohibited under 40 CFR 268.3)
 - ❖ No evaporation (either passive or heat-applied).
 - ❖ Available to SQG, & LQG
 - ❖ VSQG must meet specified performance standards for episodic events



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RCRA Empty vs. California Empty

- ❖ Containers that have been contaminated with hazardous waste are exempted if they are empty. There are two measures to determine if a container is *empty*:
- ❖ According to federal regulations, a container is considered empty when all wastes are removed using common practices and:
 - ❖ There must be no more than 2.5 cm (1 inch) remaining in the container, -- or -- containers [less than 110 gallons](#) must have no more than 3% remaining, -- or -- containers [over 110 gallons](#) must have no more than 0.3% remaining in the container.
- ❖ Compressed gas cylinders are considered empty when the pressure in the container approaches atmospheric pressure.
- ❖ Containers holding [acutely hazardous materials](#) must be triple rinsed.



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California Empty Containers

In California, a **RCRA-empty container is still a hazardous waste** unless it also meets the Title 22 CCR 66261.7 requirements for “California empty,” which are:

- ❖ **Pourable Materials:** Remove material by any practicable means:
- ❖ **Draining, pouring (no longer continuous stream when container is inverted), pumping, or aspirating**
- ❖ **Non-pourable Materials** (including viscous materials): No material remains after scraping, chipping (but not rinsing)
- ❖ **Acute/Extremely Hazardous Material:** Triple-rinsing using solvent capable of removing material (or equivalent method)

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California Empty Containers

If a container meets the “**drip/dry**” standard, the “empty” container may be managed as follows:

- ❖ 5 gallons or smaller = dispose in a non-hazardous landfill
- ❖ Larger than 5 gallons = must reclaim for scrap value, reconditioned, remanufactured or refilled
 - Mark with date emptied and manage offsite within 1 year
- ❖ Aerosols = Completely discharge contents and propellant before disposed in a non-hazardous waste landfill

Maintain records for 3 years

Name, address, and telephone number of the owner/operator of facilities where empty containers were shipped



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RCRA Empty Containers

When are containers with P-listed empty?

- Containers that held acute hazardous wastes have been triple-rinsed with solvent capable of removing the hazardous waste or cleaned by other means equivalent to the above.
- In the case of a container, the inner liner that prevented contact of the hazardous waste has been removed
- Triple rinsing may constitute “treatment” in some jurisdictions

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Used Oil Rebuttable Presumption

Used oil containing > 1000 ppm total halogens is presumed to be HW (unless proven otherwise)

Used oil below the following is exempt from 40 CFR 279 when burned for energy recovery (unless mixed with HW):

- Arsenic 5 ppm maximum
- Cadmium 2 ppm maximum
- Chromium 10 ppm maximum
- Lead 100 ppm maximum
- Flash point 100 degrees F minimum
- Total halogens 1,000 ppm maximum



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Used Oil Management Recycling Exclusion

❖ “Used oil” is defined to exclude (H&SC §25250.1(a)(1)(C)):

- Oil with flashpoint below 100° F
- Oil that has been mixed with hazardous waste, other than minimal amounts of vehicle fuel
- Wastewater, the discharge of which is subject to regulation under the CWA
- Wastewater contaminated with de minimis amounts of used oil
- Used oil re-refining bottoms that are used as feedstock to manufacture asphalt products
- Oil containing more than 5 ppm PCBs
- Oil containing more than 1,000 ppm total listed halogens, if the oil has been mixed with a listed hazardous waste

❖ CA law establishes relaxed management standards for all used oil on-site (H&SC §§25160.2, 25250.1, 25250.11)

❖ Relaxed manifesting procedures and exemptions from permitting and transportation requirements for small quantities of used oil



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Used Oil Managed as a Hazardous Waste

Used oil must be managed as a hazardous waste unless (Cont.):

It meets standards for recycled oil in H&SC §25250.1(b)(2):

- Produced from used oil or used oil mixed with petroleum/oily wastes
- Produced by the generator or an authorized used oil recycling facility
- Meets purity standards, is not hazardous under federal law, and is not mixed with any hazardous waste
- Not hazardous due to any constituent other than those identified in purity standards
- Person who claims recycled oil meets these standards must maintain operating log and copies of certification forms
- Meets testing and recordkeeping requirements of H&SC §25250.19;
- Or (see next slide)



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3 Categories of Generators (CA & Federal)

Large Quantity Generators

- > or = 1,000 kg/mo.. of non-acute HW
- >=1 kg/mo. of acute HW
- >= 100 kg clean-up residues of acute HW

Small Quantity Generators

- 100 to 1,000 kg/mo. of non-acute HW
- < or =1 kg/mo. acute HW
- < or = 100 kg/mo. clean-up residues of acute HW

Note: Accumulation of 6,000 kg at any one time requires a one-year storage permit

Very Small Quantity Generators

- < or = 100 kg/mo.. non-acute HW (**Recognized as SQG under CA law**)
- < or =1 kg/mo.. acute HW
- < or = 100 kg/mo.. clean-up residues of acute HW

NOTE: 100 kg = 220 lbs..

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Fed. & CA Generator Requirements

What, When, How

Requirement	Federal VSQG	Federal SQG	Federal LQG	State CESQG
Waste Characterization	X	X	X	X
Obtain EPA ID Number		X	X	X
Manifesting		X	X	X
LDR Notification		X	X	X
Exception Reporting		(modified)	X	(modified)
Personnel Training		X	X	X
Personnel Training Program			X	
Contingency Plan			X	
Weekly Inspections		X	X	X
50 Feet from Fence line		X	X	X

CESQG = Conditionally Exempt Small Quantity Generator
 VSQG = Very Small Quantity Generator
 SQG = Small Quantity Generator
 LQG = Large Quantity Generator
 LDR = Land Disposal Restriction

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Federal Generator Requirements

What, When, How

Requirement	Federal VSQG	Federal SQG	Federal LQG	State CESQG
Post Emergency Information		X	X	X
Emergency Equipment		X	X	X
Container Management		X	X	X
Tank Management		X	X	X
Accumulation Facility Closure			X	
Biennial Report			X	
HW Pollution Prevention (CA ONLY)			X	
Short-term Waste Accumulation Limit (i.e., Satellite accumulation)		Up to 55 gallons of hazardous waste and 1 quart of acutely hazardous waste NOTE: CA law prohibits storing HW for more than 1 year from accumulation		Up to 55 gallons of hazardous waste and 1 quart of acutely or extremely hazardous waste NOTE: CA law prohibits storing HW for more than one year from accumulation.
Long-term Waste Accumulation Limit		180 Days	90 Days	180 Days

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Fed & CA Generator Requirements

What, When, How

Requirement	Federal VSQG	Federal SQG	Federal LQG	State CESQG
Post Emergency Information		X	X	X
Emergency Equipment		X	X	X
Container Management		X	X	X
Tank Management		X	X	X
Accumulation Facility Closure			X	
Biennial Report			X	
HW Pollution Prevention (CA ONLY)			X	
Short-term Waste Accumulation Limit (i.e., Satellite accumulation)		Up to 55 gallons of hazardous waste and 1 quart of acutely hazardous waste NOTE: CA law prohibits storing HW for more than 1 year from accumulation		Up to 55 gallons of hazardous waste and 1 quart of acutely or extremely hazardous waste NOTE: CA law prohibits storing HW for more than one year from accumulation.
Long-term Waste Accumulation Limit		180 Days	90 Days	180 Days

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Automatic Extension to Accumulation Time (22 CCR 66262.34)

If non-RCRA or RCRA-exempt hazardous wastes must remain on-site for longer than the applicable accumulation time period as a result of unforeseeable, temporary, and uncontrollable circumstances, a one-time extension of up to 30 days is automatically granted if the generator meets all of these conditions ([22 CCR 66262.35\(a\)\(1\)](#)):

- ❖ The generator submits a letter, by certified mail with return receipt requested, to the CUPA, notifying the CUPA of the extension.
- ❖ Generators authorized by Cal/EPA with a permit, Standardized Permit, or grant of interim status must simultaneously submit to Cal/EPA a copy of the letter sent to the CUPA or authorized officer or agency.
- ❖ Provides, upon request by the CUPA or authorized officer or agency, all documents, operating logs, reports, or any other information that supports the claim of necessity for the extension or relates to the management of the hazardous waste for which the extension is requested.



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Episodic Waste Generation Containers & Tanks Applicability

Applies to SQGs & VSQG for planned & unplanned events

- **Planned events:** maintenance, tank cleanouts, short-term projects & removing excess chemicals
- **Unplanned events:** Production process upsets, product recalls, accidental spills, acts of nature
- Up to two episodic events allowed (2nd event subject to EPA approval)



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Episodic Waste Generation

Containers & Tanks: Labeling

Labeling:

- **“Episodic Hazardous Waste”**
- **Indicate hazards** (i.e., ignitable, corrosive, reactive, or toxic)
- **Date:** Episodic event began
- **Accumulation:** Up to 60 days
- **Manifest:** required for off-site shipments



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Episodic Waste Generation

Containers & Tanks: Records

Records:

- Beginning & ending dates of episodic event
- Description of episodic event
- Types and quantities of HW generated during event
- Description of fate of HW managed
- Name of transporter
- EPA approval letter (as appropriate)



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Satellite Accumulation

SATELLITE ACCUMULATION

Satellite Accumulation Areas

①
Hazardous Waste
Ex: Solvent-Contaminated Rags for Disposal (F003-F005)

②
10 Gallons
25 Gallons
30 Gallons
Hazardous Waste
Ex: Spent Solvent (F002, F003, F005)

③
1 Quart
Hazardous Waste
Ex: Unused Off-Specification Nitroglycerin (P081)

Generator 90-Day Accumulation Area

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Accumulation Time Limits for LQGs

**HAZARDOUS WASTE
Generator/Accumulation Time-Line**

day 1 3 90 365

Solvent Bath
First drop Full

Hazardous Waste
55 gal. drum

Extremely Hazardous Waste
1 qt./kg.

1 year onsite TSD

90 day storage onsite

direct offsite

offsite

offsite

TSDF

TSDF

TSDF

* TSDF - Treatment, Storage or Disposal Facility
* all drums to be labeled with -start date, and -contents or "Hazardous Waste"

*** SQGs can accumulate onsite for 180 days**

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Management of Laboratory Hazardous Waste Act

AB 966 (Ackerman, 1998) HSC 25123.5

Revised definition of “treatment”

Defined terms:

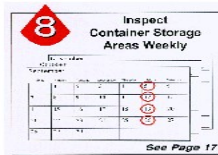
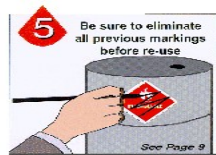
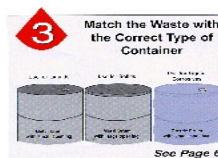
- Laboratory
- Laboratory hazardous waste
- Laboratory accumulation area
- Exempts from hazardous waste facilities permit or authorization requirements the treatment of laboratory hazardous waste generated onsite if requirements are met based on certain criteria

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Container Requirements & BMPs

BEST MANAGEMENT PRACTICES for CONTAINERS



Refer to U.S. EPA Region 6 Best Management Practices Handbook for Hazardous Waste

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Generator Satellite Accumulation Storage Requirements: Container Condition

- ❖ Containers must be in “good physical condition”:
- ❖ Must not show signs of rust or corrosion
- ❖ No sharp-edged creases or dents are permitted
- ❖ No bulging heads (due to over-pressurizing container)



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LQG: RCRA Required Training

LQGs that accumulate hazardous waste on-site for 90 days or less without a permit must:

- Comply with the same personnel training requirements that apply to hazardous waste TSDFs.
- A generator who accumulates hazardous waste for more than 90 days is an operator of a storage facility and must also comply with the training requirements for TSDFs. [40 CFR 262.17](#)
- Training required for Large quantity **generators (22 CCR 66265.16)**
- Initial training required within 6 months of employment or assignment to new position
- Supervision required until training received
- Annual refresher training required
- Training must include written job descriptions
- Written description of type and amount of training each job category must take

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SQG RCRA Training Requirements

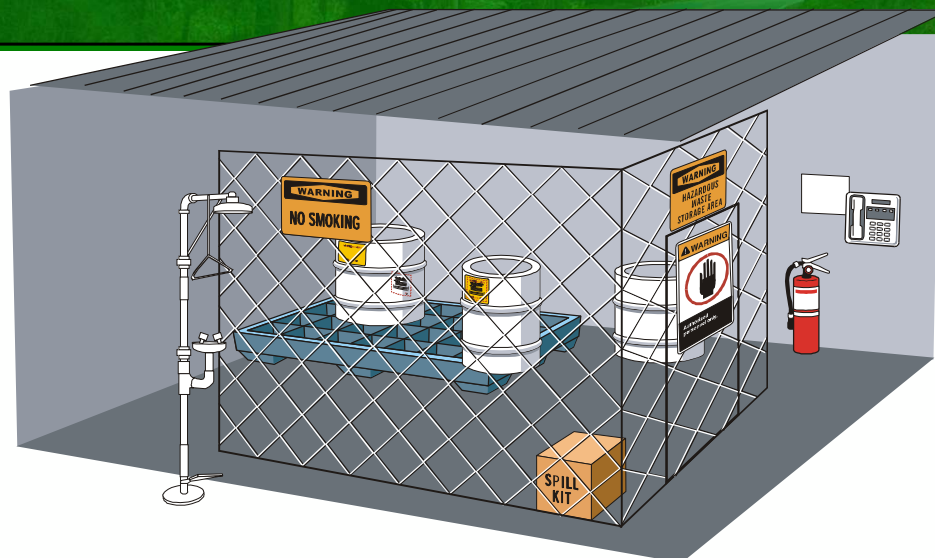
- ❖ Required to ensure all employees are “thoroughly familiar with waste handling/emergency procedures” 40 CFR 262.16 (**22 CCR 66262.34**)
- ❖ Not required to have a formal written training program for their employees.
- ❖ SQGs are required, however, to ensure that facility personnel are thoroughly familiar with:
 - proper waste-handling procedures and
 - emergency response procedures relevant to their responsibilities during normal facility operations and emergencies. [40 CFR 262.16](#)



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Accumulation Area



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Distribution of Copies

A copy of the generator's contingency plan must be kept on-site. The plan also must be sent to:

- Local fire and police departments
- Local hospitals
- Local emergency response team
- State emergency response team
- State environmental agency

40 CFR 264.53 & 40 CFR 265.53



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LQG Waste Minimization/SB 14

Hazardous waste source reduction and management review act of 1989 (SB 14):

- Applies to generators of > 12,000 kg/yr. of hazardous waste or > 12 kg/yr. of extremely hazardous waste
- Requires preparation of analyses and reports documenting waste minimization efforts
- First reports were due by September 1, 1991 (and every four years thereafter)
- Health & Safety Code 25244.12 *et seq.*

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Land Disposal Restrictions

Federal Land Disposal Restrictions (LDR) ("Land Ban") (40 CFR 268/22 CCR 66268)

- Waste-specific Treatment Standards that Must be Met Before a Waste is Disposed of on Land (e.g., Placed in a Landfill, surface impoundment, injection well, land treatment facility, waste pile, etc..)
- Mixtures of Wastes Must Meet Standard Treatment for Each Waste in the Mixture

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Land Disposal Restrictions LDR Generator Requirements

- ❖ Generator must determine whether waste is subject to LDR rules
- ❖ Pretreatment Obligation is on Disposer, but Generator Must Identify LDR-affected Wastes on Manifests
- ❖ **Generator must determine:**
 - What regulated underlying constituents and what concentrations are present in the HW and all applicable EPA HW ID numbers,
 - treatment standards or prohibition levels that compared to constituents and their concentrations in the hazardous waste:
 - i.e., wastewater or non-wastewater
 - i.e., subdivisions made within a waste code based on waste-specific criteria (e.g. D003 reactive cyanides)

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Businesses generating TWW Incidental to Normal Course of Business

- ❖ “Incidentally generated” where businesses not routinely involved in construction, demolition, or other activities involving TWW.
- ❖ Handling/Disposal Requirements:
- ❖ Keep TWW segregated from other materials
- ❖ Label TWW bundle/shipments with:
 - Treated Wood Waste –Do not burn or scavenge.
 - TWW Handler
 - Name: _____
 - Address: _____
 - Accumulation Date: _____

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What is a Universal Waste?

- ❖ Common batteries
- ❖ Pesticides
- ❖ Mercury-containing equipment, including thermostats
- ❖ Lamps, including fluorescent, high-intensity discharge, neon, mercury vapor, high-pressure sodium, and metal halide lamps



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Universal Waste

UNIVERSAL WASTE
Lamps

Accumulation Start Date: _____

UNIVERSAL WASTE
Mercury
Containing
Equipment

Accumulation Start Date: _____



UNIVERSAL WASTE
Batteries

Accumulation Start Date: _____

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What is a Universal Waste?

Spent batteries, mercury-containing lamps (e.g., some fluorescent bulbs, mercury vapor lamps, and high intensity discharge [HID] lamps), mercury-containing appliances, mercury thermostats and switches

Unused pesticides – **Fed but Not CA**

The following UWs are subject to regulation in California ([22 CCR 66273.1](#)):

- Batteries, as described in [22 CCR 66273.2\(a\)](#)
- Electronic devices, as described in section [22 CCR 66273.3\(a\)](#)
- Mercury Containing Equipment (MCE), as described in [22 CCR 66273.4\(a\)](#)
- Lamps, as described in [22 CCR 66273.5\(a\)](#) (including, but not limited to, M003 wastes)
- Cathode Ray Tubes (CRTs) as described in [22 CCR 66273.6\(a\)](#)
- CRT glass, as described in [22 CCR 66273.7\(a\)](#)
- Non-empty aerosol cans, as described in [CH & SC 25201.16](#)
- Cal/EPA's DTSC administers and enforces the universal waste (UW) rules in California
- Sometimes the local CUPA must be notified of UW activities



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	SQHUU	LQHUU
Quantity limit	< 5,000 kg on site §273.6	≥ 5,000 kg on site §273.6
EPA Identification Number	Not required §273.12	Required §273.32
On-site accumulation limit	< 5,000 kg §273.6	No limit
Storage time limit	1 year, unless for proper recovery, treatment, or disposal §273.15	1 year, unless for proper recovery, treatment, or disposal §273.35
Manifest	Not required §273.19	Not required, but must keep basic shipping records §273.39
Personnel training	Basic training §273.16	Basic training geared toward employee responsibilities §273.36

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Are Your Universal Wastes Stored Properly?



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Lead Acid Batteries

- Automotive type lead acid batteries cannot be managed as universal wastes (22 CCR §66273.2)
- Lead acid batteries may be disposed of at recycling centers or with persons who engage in the sale of lead batteries directly to consumers (H&SC §25215 *et seq.*)
- Dealers of lead acid batteries must accept a spent lead acid battery from a consumer when the consumer buys a new lead acid battery
- Lead acid batteries may NOT be disposed of at solid waste facilities, or on land, surface waters, watercourses, or marine waters

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Lead Acid Batteries

Management of lead acid batteries is exempt from certain requirements of the HWCA if one of the following applies (22 CCR §66266.81):

- Persons who manage 10 or fewer batteries, if the batteries are to be recycled
- Persons who transfer batteries to a person who accepts spent batteries in exchange for new batteries
- Persons who accept spent batteries in exchange for new batteries, if certain quantity and time limits are not exceeded, and electrolyte is not removed
- Persons who transport more than 10 batteries, if bills of lading are used to transport the batteries, and the batteries will eventually be recycled
- Persons who store batteries and transfer them offsite for recycling, if certain quantity and time limits are not exceeded, and electrolyte is not removed

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Antiterrorism Requirements

(H&SC 25169.5 et seq.)

❖ DTSC required to:

- Develop list of hazardous wastes that present public risk if obtained by terrorists or criminals
- Assign reportable quantity (RQ) levels for each waste
- ❖ HW transporters and operators of TSDFs must notify DTSC when wastes are missing beyond RQ
- ❖ Applicants for TSDF and tiered permits and applicants seeking authorization to transport HW must submit disclosure statement to DTSC
- ❖ DTSC must conduct background checks within 180 days
- ❖ Applicants for TSDFs must provide fingerprint images to DTSC
- ❖ DTSC must submit fingerprint images to DOJ

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Definition of Treatment

(40 CFR 260.10/22 CCR 66260.10)

“Treatment” means any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste non-hazardous, or less hazardous; safer to transport, store, or dispose of; or amenable for recovery, amenable for storage, or reduced in volume.

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Hazardous Waste Tiered Permitting

Treatment/Storage

California has a 5-tier permitting program for facilities that treat, store, or dispose of hazardous waste

Requirements imposed upon each category of facility depends on the degree of risk they pose

The tiers (in descending order of regulatory oversight):

1. Full permit tier (Federally-equivalent) (T, S, D) OFF-SITE
2. Standardized permit tier (T, S) OFF-SITE
3. Permit by rule tier (T) ONSITE
4. Conditional authorization tier (T) ONSITE
5. Conditional exemption tier (T) ONSITE

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California PCB Regulations

In California, PCBs are Hazardous Wastes at Concentrations > 5 ppm and are Regulated under HWCL

Therefore:

- PCBs < 5 ppm are not Regulated by HWCL or TSCA
- PCBs 5 – 50 ppm are California-only Hazardous Wastes
- PCBs > 50 ppm are California Hazardous Wastes and are Regulated under TSCA

Watch for electrical equipment and Light Ballasts



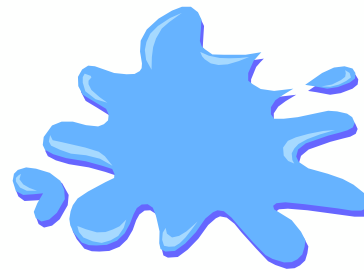
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Spills & Releases of Hazardous Waste



❖ In the event of a release of hazardous waste

- Contact the Shift Supervisor
- Restrict access
- Determine if a “flight or fight” response is appropriate
- Seek help if needed
- Try to determine what has been released



❖ If safe to do so:

- Determine personal protective equipment requirements
- Contain, dike, or divert released material
- Stop the source



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Civil and Criminal Penalties

- ❖ **New Federal Penalty: \$105K** per day/per violation
- ❖ **Minor violations:** can incur penalties up to **\$70,000** per day if corrective action orders are ignored.
- ❖ **Class II violations:** incur up to **\$70,000** per day per violation.
- ❖ **Knowing, willful and intentional violations:** may trigger penalties up to **\$100,000** per day, or **\$250,000** per day and imprisonment if violations cause serious bodily injury or death.
- ❖ **Criminal Penalties:** Criminal misdemeanor charges, punishable by up to **\$1,000** in fines and up to **6 months imprisonment**.



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Contact Me

Gary Lucks JD, CPEA

510-290-5423

gary@beyondcompliance.net

www.beyondcompliance.net

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