Tiered Permitting and Pretreatment, One and the Same?

Session Code: Th-J6
March 27, 2025

Minh Le, M.S., R.E.H.S
Hazardous Materials Supervisor, Los Angeles City Fire Department
Emily Minson, R.E.H.S
Source Control Inspector II, Orange County Sanitation District

27th California Unified Program
Annual Training Conference
March 24-27, 2025

Disclaimer

The materials provided in this presentation and any comments or information provided by the presenters are for educational purposes only. Information provided in this presentation is not representative of The Orange County Sanitation District or City of Los Angeles Fire Department.

The fire that started a presentation

Program Backgrounds

What is a CUPA?

Hazardous Materials Business Plan/Inventory & Disclosure Program

California Accidental Release Prevention Program

Underground Storage Tank (UST) Program

Aboveground Petroleum Storage Act (APSA) Program

The Purpose of the Hazardous Waste Generator Program

Goals:

- Protect Human Health and the Environment
- Ensuring Safe Disposal and Treatment
- Promoting Waste Minimization and Resource Recovery

Accomplished by:

- Regulating Hazardous Waste Generators
- Monitoring and Enforcement

What is a POTW?

POTW =Publicly Owned Treatment Works

- A sewage or wastewater treatment works which is owned by a state or municipality
- Includes any devices or systems used in the storage, treatment, recycling, and reclamation of municipal sewage or industrial wastes of a liquid nature

Purpose of POTWs

- Treat wastewater to:
  - Prevent Disease
  - Prevent contamination to surrounding environment
  - Provide a source of water that can be reused, reclaimed, or recycled

POTWs generally designed for:

Conventional Pollutants

- Biochemical Oxygen Demand (BOD)
- Total Suspended Solids (TSS)
- pH
- Fecal Coliform
- Oil and Grease

POTWs generally NOT designed for:

- Non-conventional pollutants
- Toxic pollutants
- Priority pollutants

Non-Conventional Pollutant

- Any pollutant that is neither a toxic pollutant nor a conventional pollutant
  - Ex: ammonia

Priority Pollutant

- Priority List:
  - Individual pollutants rather than groups
  - Analytical test methods have been developed by EPA to test for each pollutant
  - 126 listed pollutants

Toxic Pollutant

- Pollutant listed by the EPA Administrator under CWA section 307(a).
  - 65 listed pollutants
    - Open-ended groups of pollutants
      - *ex: chromium and compounds*

IDENTIFICATION OF HAZARDOUS WASTE VS. WASTEWATER

27th California Unified Program
Annual Training Conference
March 24-27, 2025

What is a Waste?

Any discarded solid, liquid, semisolid or contained gaseous material

Is it a Solid Waste?

Solid Waste: any garbage or refuse, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, resulting from industrial, commercial, mining, and agricultural operations, and from community activities.

- Many solid wastes are liquid, semi-solid, or contained gaseous material.
- Only solid waste can be a hazardous waste

What is NOT a Waste?

22 CCR 66261.4a-e:

- Industrial wastewater discharges at point sources
- Source, special nuclear or by-product material as defined by the federal Atomic Energy Act of 1954
- Spent sulfuric acid used to produce virgin sulfuric acid
- Pulping liquors
- Secondary materials that are reclaimed and returned to the original process
- Treatability study samples (studying how to treat the hazardous waste

HSC 25143.2(b):
Recycling exclusion

HSC 25142.2(d):
Recycling exclusion

What is a Hazardous Waste?

Waste that because of its quantity, concentration or physical, chemical or infectious characteristics:

- Causes or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness

or

- Poses a substantial present or potential hazard to human health or the environment

Hazardous Waste Under California

Characteristic	• Ignitable
	• Corrosive
	• Reactive
	• Toxicity
	  ◦ RCRA's TCLP test
	  ◦ California TTLC/STLC tests
	  ◦ California's fish bioassay tests
	  ◦ Other California tests

Listing	• RCRA lists • California Appendix X (this list is presumptive only)
Statutory Definition	• Poses a substantial present or potential hazard to human health or environment when improperly managed

Characteristics of Hazardous Waste

Ignitability (D001, in 22 CCR § 66261.21)

Flashpoint < 140 degrees F

Corrosivity (D002, in 22 CCR § 66261.22)

pH less than or equal to 2, or greater than/equal to 12.5

Reactivity (D003, in 22 CCR § 66261.23)

Unstable; reacts violently with water

Toxicity

(D004-D043 in 22 CCR § 66261.24)

As defined by federal Toxic Characteristic Leaching Procedure, or TCLP)

California's additional toxicity tests

What is Wastewater?

Liquid and water-carried wastes of the community and all constituents thereof, whether treated or untreated, discharged into or permitted to enter a public sewer

Domestic Wastewater

shall mean the liquid and solid waterborne wastes derived from the ordinary living processes of humans of such character as to permit satisfactory disposal, without special treatment

Process Wastewater

Any water that during manufacturing or processing comes into contact with or results from the production or use of any raw material, intermediate products, finished product, byproduct, or waste product

Laws and Regulations

Hazardous Waste: Laws and Regulations

Resource Conservation and Recovery Act (RCRA)
Federal minimum hazardous waste requirements

- 40 CFR Parts 260-268

Hazardous Waste Control Law (HWCL)
California adopted the federal hazardous waste requirements and added more stringent requirements

- Title 22 CCR Division 4.5

Tiered Permitting

- AB 1772 overhauled the state permitting program and established a five-tier permitting system
- Filled the gap between federal exemptions from permitting and CA hazardous waste control program
- Balanced regulatory requirements with risks posed by the facility
- Referred to as the Tiered Permitting (TP) Program

Where did the National Pretreatment Program come from?

Cuyahoga River

1981 Louisville Sewer Explosion

The Clean Water Act (CWA)

- Passed on October 18, 1972
- Established the basic structure for regulating the discharge of pollutants into waters of the United States
- Gave EPA authority to implement pollution control programs
  - National Pollutant Discharge Elimination System (NPDES) Permitting Program
  - The National Pretreatment Program

National Pollutant Discharge Elimination System (NPDES)

- The national program for issuing, modifying, revoking, and reissuing, terminating, monitoring, and enforcing discharge permits from point sources to waters of the United States
- Impose and enforce pretreatment requirements, under CWA sections

National Pretreatment Standard

- Any regulation containing pollutant discharge limits promulgated by the EPA in accordance with section 307 (b) and (c) of the Act, which applies to industrial users. This term includes prohibitive discharge limits established pursuant to §403.5.
- Apply to non-domestic sources of wastewater that introduce pollutants into a POTW

Categorical Standards

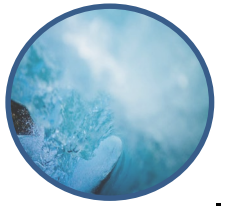
- Any regulation containing pollutant discharge limits promulgated by the EPA in accordance with Sections 307(b) and (c) of the Act.
  - 35 categories
  - 40 CFR 405-471
- Facility regulated under standards are referred to as a Categorical Industrial User

Categorical Standards

- Aluminum Forming
- Battery Manufacturing
- Carbon Black Manufacturing
- Centralized Waste Treatment
- Coil Coating
- Concentrated Animal Feed Operations
- Copper Forming
- Electrical and Electronic Components
- Electroplating
- Fertilizer Manufacturing
- Glass Manufacturing
- Grain Mills
- Ink Formulating
- Inorganic Chemical Manufacturing
- Iron and Steel Manufacturing
- Ink Formulating
- Inorganic Chemical Manufacturing
- Iron and Steel Manufacturing
- Leather Tanning and Finishing
- Metal Finishing
- Metal Molding and Casting
- Nonferrous Metals Forming and Metal Powders
- Nonferrous Metals Manufacturing
- Oil and Gas Extraction
- Organic Chemicals, Plastics, and Synthetic Fibers
- Paint Formulating
- Paving and Roofing Materials (Tars and Asphalt)
- Pesticide Chemicals
- Petroleum Refining
- Pharmaceutical Manufacturing
- Porcelain Enameling
- Pulp, Paper, and Paperboard
- Rubber Manufacturing
- Soap and Detergent Manufacturing
- Steam Electric Powder Generating
- Timber Products Processing
- Transportation Equipment Cleaning
- Waste Combustors

Significant Industrial User

- a categorical industrial user;
- a user which discharges an average of 25,000 gpd or more of process wastewater to a POTW (excluding sanitary, noncontact cooling and boiler blowdown wastewater);
- contributes a process wastestream which makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW; or
- is designated a significant industrial user by the Control Authority



Sewer Use Ordinance

Typically, municipalities establish ordinances and districts establish rules and regulations to implement the Pretreatment Regulations. A sewer use ordinance, or Rules and Regulations, is a legal instrument, approved by the Approval Authority as part of the Control Authority's proposed pretreatment program submission that is implemented by a local governmental entity which sets out all the requirements for the discharge of pollutants into a POTW.

Prohibitions

General and specific prohibitions have been developed by EPA and local municipalities to protect the POTW

General Prohibitions

- Prohibitions that apply to each user introducing pollutants into a POTW whether or not they are subject to national pretreatment standards or any national, state, or local pretreatment requirements
  - Any user may not introduce any pollutants to the POTW that can cause Pass Through or Interference

Specific Prohibitions

- Pollutants which result in the presence of toxic gases, vapors, or fumes within the POTW in a quantity that may cause acute worker health and safety problems

Specific Prohibitions

- Pollutants which create a fire of explosion hazard in the POTW
  - Waste streams with a closed cup flashpoint* of less than 140°F/60°C
  - Uses test methods specified in 40 CFR 261.21

Specific Prohibitions

- Heat in amounts which will inhibit biological activity in the POTW resulting in interference
  - Temp. can't exceed 104°F/40°C

Specific Prohibitions

- Pollutants which will cause corrosive structural damage
  - No pH lower than 5.0 S.U. unless treatment works is specifically designed to accommodate discharge

Specific Prohibitions

- Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through

Tiered Permitting vs. Pretreatment

What is "Treatment"?

Health & Safety Code 25123.5

" Except as provided in (b) and (c) means any method, technique, or process which is not otherwise excluded from the definition of treatment by this chapter and which is designed to change the physical, chemical, or biological character or composition of any hazardous waste or any material contained therein, or which removes or reduces its harmful properties or characteristics for any purpose."

What is not "Treatment"?

- Sieving or filtering
- Phase separation
- Combining compatible waste streams
- Evaporation of water without added pressure, chemicals, or heat
- Addition of glutaraldehyde or orthophthaladelhyde in medical facilities to disinfect medical devices
- Remove air pollutants from exhaust gases
- Recycling

HSC 25201.12
HSC 25142.2(b-d)

Treatment: Tiered Permitting (TP)

Facilities that are treating their own hazardous waste are subjected to TP when the treatment involves:

- Non-RCRA hazardous waste
- RCRA hazardous waste not included in the federal treatment permit

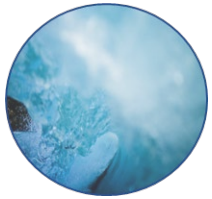
20 waste streams
https://dtsc.ca.gov/wp-content/uploads/sites/31/2022/09/Onsite-Tiered-Permitting-Flowchart.pdf

TP Tiers

Treatment Tiers	Conditional Exemption (CE) Includes CESQT, CESW, CEL, CECL	Conditional Authorization (CA)	Permit by Rule (PBR)	Standardized	Part B
Regulatory Oversight	CUPA	CUPA	CUPA	DTSC	DTSC

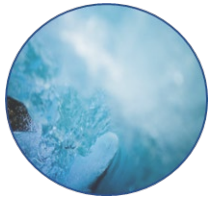
On-site Documentation Requirements for Each Tier

Conditional Exemption (CE)	Conditional Authorization (CA)	Permit by Rule (PBR)
• Written operating procedures • Waste treatment records • Written inspection schedule and inspection log • Wastewater discharge records	• Written operating procedures • Waste treatment records • Written inspection schedule and inspection log • Wastewater discharge records • Financial assurance • Phase I assessment	• Written operating procedures • Waste treatment records • Written inspection schedule and inspection log • Wastewater discharge records • Financial assurance • Phase I assessment • Closure plan • Waste analysis plan



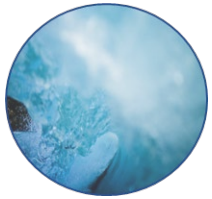
National Pretreatment Program

Designed to Protect POTW infrastructure by reducing conventional and toxic pollutant levels discharged by industries and other nondomestic wastewater sources into municipal sewer systems that discharge to the environment



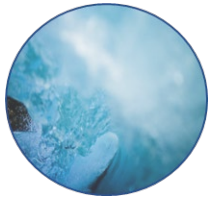
What is Pretreatment?

The reduction in the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to, or in lieu of, introducing those pollutants into the POTW. This reduction or alteration can be obtained by physical, chemical, or biological processes; by process changes; or by other means, except by diluting the concentration of the pollutants unless allowed by an applicable pretreatment standard.



What is a Pretreatment Facility?

- An industrial facility that is treating/pretreating their wastewater before discharging to the treatment facility aka the POTW



What is a Pretreatment System?

- Industrial wastewater treatment system consisting of one or more treatment devices designed to remove sufficient pollutants from waste streams to allow an industry to comply with effluent limits (i.e., categorical standards, local limits, and federal and local prohibitive standards).

Test Methods:Tiered Permitting vs. Pretreatment

27th California Unified Program
Annual Training Conference
March 24-27, 2025

Hazardous Waste Under California

Characteristic	• Ignitable
	• Corrosive
	• Reactive
	• Toxicity
	  • RCRA's TCLP test
	  • California TTLC/STLC tests
	  • California's fish bioassay tests
	  • Other California tests

Listing	• RCRA lists • California Appendix X (this list is presumptive only)
Statutory Definition	• Poses a substantial present or potential hazard to human health or environment when improperly managed

Test Method for Waste Analysis Plan

Sampling and sample management must be in accordance with USEPA's Chapter Nine of "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," SW-846, 3rd. Edition (known as SW-846)

California Toxicity Tests

- Exceeds concentrations (STLC/TTLC) for 38 substances
- More than 0.001% by weight of any of 16 listed substances (*e.g.* vinyl chloride)
- Acutely toxic at specified concentrations for specified exposure routes (*e.g.* acute oral LD50 <5,000 mg)
- Acute aquatic 96-hour LC50 <500 ml/L measured by fathead minnows (*Pimephales promelas*) or other rainbow trout (*Oncorhynchus mykiss*)

California TTLC & STLC

TTLC = Total Threshold Limit Concentration
STLC = Soluble Threshold Limit Concentration

- 20 metals/inorganic & 18 organics (pesticides)
- The waste is a California-only *hazardous waste* if it exceeds either threshold
- The waste does not need to be sampled for both
  - First sample for TTLC and then only analyze using WET test if measured TTLC exceeds STLC limit by ten-fold
- TTLC and STLC concentration limits only apply to asbestos or elemental metals if in a "friable, powdered or finely divided state"

TTLC & STLC Limits

	STLC	TTLC
Substance[a], [b]	**mg/l**	**Wet-Weight mg/kg**
Antimony and/or antimony compounds	15	500
Arsenic and/or arsenic compounds	5.0	500
Asbestos		1.0
		(as percent)
Barium and/or barium compounds (excluding barite)	100	10,000[c]
Beryllium and/or beryllium compounds	0.75	75
Cadmium and/or cadmium compounds	1.0	100
Chromium (VI) compounds	5	500
Chromium and/or chromium (III) compounds	5[d]	2,500
Cobalt and/or cobalt compounds	80	8,000
Copper and/or copper compounds	25	2,500
Fluoride salts	180	18,000
Lead and/or lead compounds	5.0	1,000
Mercury and/or mercury compounds	0.2	20
Molybdenum and/or molybdenum compounds	350	3,500[e]
Nickel and/or nickel compounds	20	2,000
Selenium and/or selenium compounds	1.0	100
Silver and/or silver compounds	5	500
Thallium and/or thallium compounds	7.0	700
Vanadium and/or vanadium compounds	24	2,400
Zinc and/or zinc compounds	250	5,000

T22 § 66261.24(a)(2)

Federal Toxicity Characteristic Leaching Procedure (TLCP)

EPA HW No.[1]	Contaminant	CAS No.[2]	Regulatory Level (mg/L)
D016	2,4-D	94-75-7	10.0
D027	1,4-Dichlorobenzene	106-46-7	7.5
D028	1,2-Dichloroethane	107-06-2	0.5
D029	1,1-Dichloroethylene	75-35-4	0.7
D030	2,4-Dinitrotoluene	121-14-2	[3] 0.13
D012	Endrin	72-20-8	0.02
D031	Heptachlor (and its epoxide)	76-44-8	0.008
D032	Hexachlorobenzene	118-74-1	[3] 0.13
D033	Hexachlorobutadiene	87-68-3	0.5
D034	Hexachloroethane	67-72-1	3.0
D008	Lead	7439-92-1	5.0
D013	Lindane	58-89-9	0.4
D009	Mercury	7439-97-6	0.2
D014	Methoxychlor	72-43-5	10.0
D035	Methyl ethyl ketone	78-93-3	200.0
D036	Nitrobenzene	98-95-3	2.0
D037	Pentachlorophenol	87-86-5	100.0
D038	Pyridine	110-86-1	[3] 5.0
D010	Selenium	7782-49-2	1.0
D011	Silver	7440-22-4	5.0
D039	Tetrachloroethylene	127-18-4	0.7
D015	Toxaphene	8001-35-2	0.5
D040	Trichloroethylene	79-01-6	0.5
D041	2,4,5-Trichlorophenol	95-95-4	400.0
D042	2,4,6-Trichlorophenol	88-06-2	2.0
D017	2,4,5-TP (Silvex)	93-72-1	1.0

- This test method is used to simulate leaching in the landfill
- Concentration-based regulatory level for 40 chemicals
- 20 fold dilution factor

Test Method for Waste Analysis Plan

Sampling and sample management must be in accordance with USEPA's Chapter Nine of "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," SW-846, 3rd. Edition (known as SW-846)

Waste Analysis Plan [T22 Section 66265.13(b)]

1. The parameters to be analyzed for each hazardous or non-hazardous waste, along with the rationale for selecting these parameters to comply with subsection (a).

2. The test methods to be used for analyzing these parameters. (The test method should be consistent with SW-846)
(If the test methods cited are in the 200 series, it is incorrect)

3. The sampling and sampling management methods to obtain a representative sample, following either Appendix I of chapter 11 or an equivalent method, including procedures for planning, equipment, sample processing, documentation, and custody.

4. The frequency at which the initial analysis will be reviewed or repeated to ensure accuracy and up-to-date results.

5. The methods to meet additional waste analysis requirements for specific waste management methods as outlined in various sections of the division.

Wastewater Discharge Records [HSC 25200.3(c)(7)]

"The generator shall maintain adequate records to demonstrate to the department and the unified program agency that the requirements and conditions of this section are met, including compliance with all applicable pretreatment standards and with all applicable industrial waste discharge requirements issued by the agency operating the publicly owned treatment works into which the wastes are discharged. The records shall be maintained onsite for a period of five years."

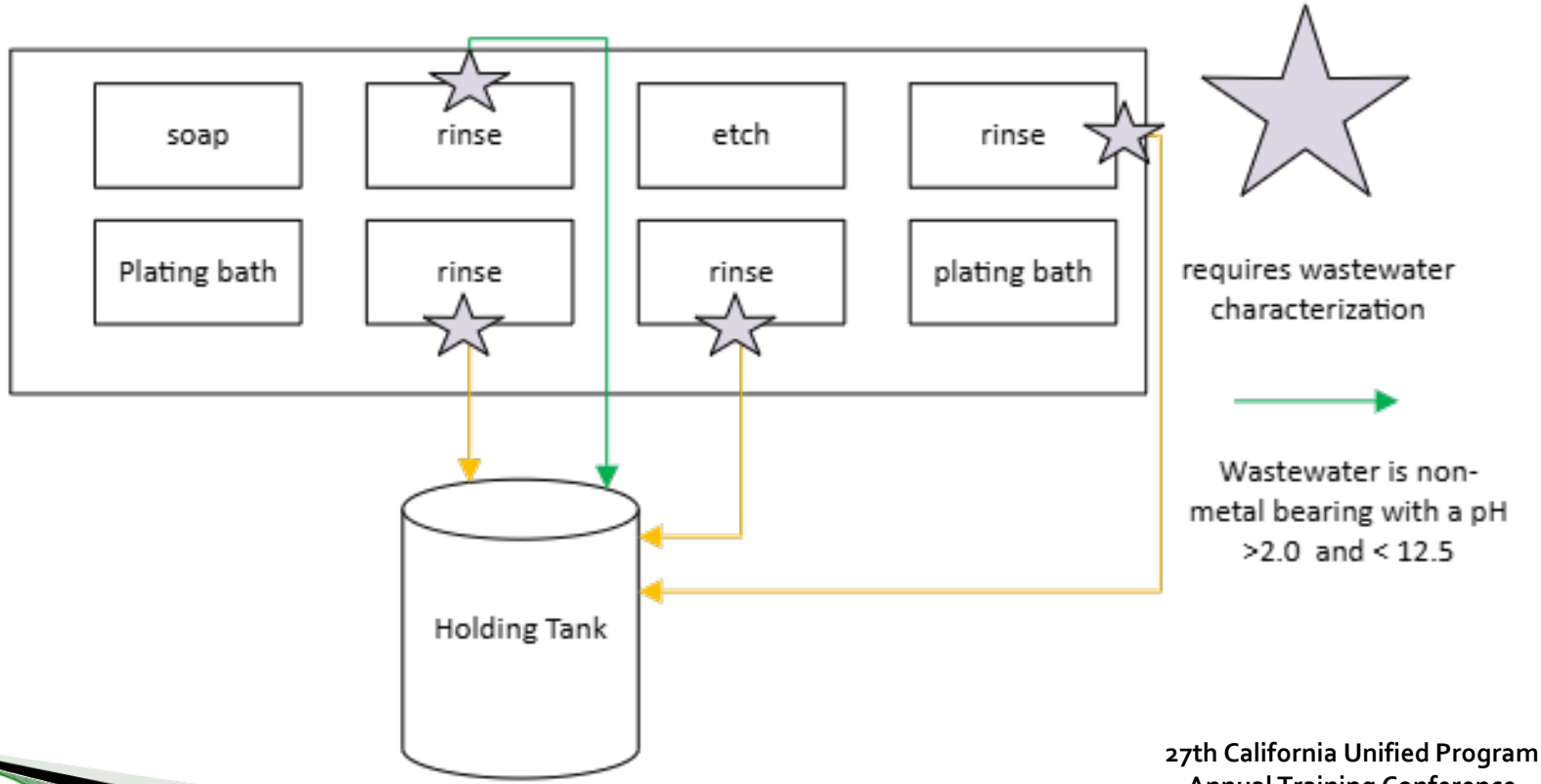
The generator must maintain onsite for a period of five (5) years adequate records to demonstrate compliance with:

- Applicable pretreatment standards
- Industrial wastewater discharge requirements issued by the local POTW

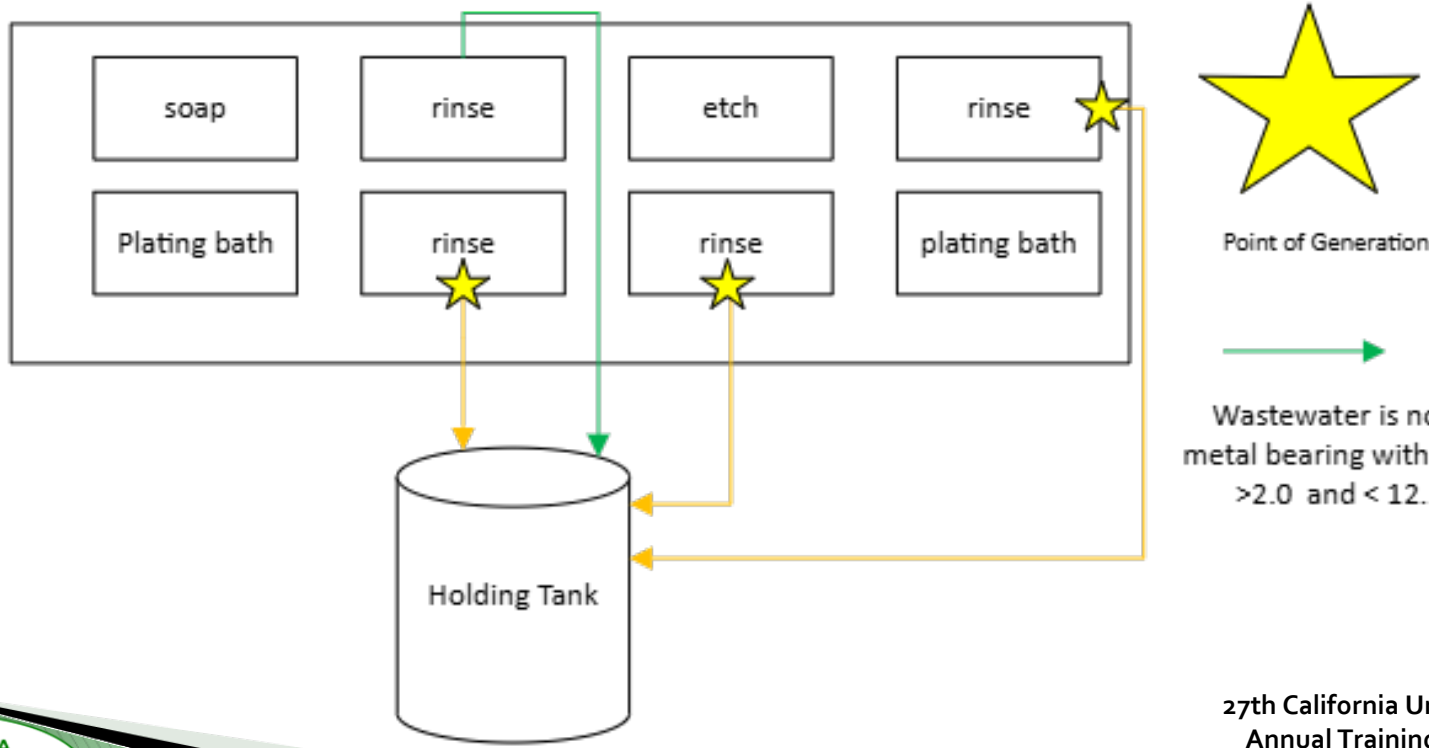
Test Methods for Wastewater

- 40 CFR 136
  - EPA Method 200.7
    - Approved for heavy metals testing
    - Not interchangeable with method 6010
  - EPA Method 200.8
    - Lower threshold limits
    - Not interchangeable with method 6010

Wastewater Characterization



Point of Generation: CUPA



Examples

Common Facility Type: Zero Discharge

CUPA

Facility is treating/recycling hazardous waste.

Sanitation

Facility is conducting regulated activities but not discharging wastewater.

Common Treatment: pH Neutralization

CUPA

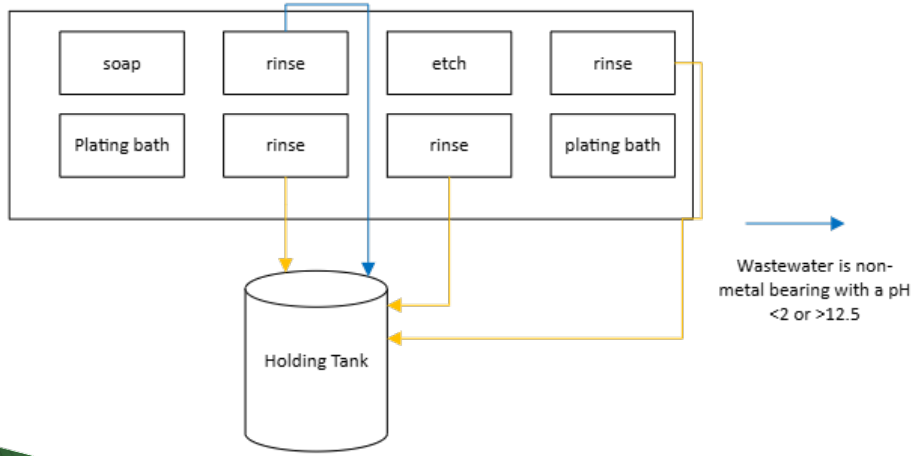
Regulate if the waste is at a pH of ≤2 or ≥12.5 at the point of generation.

Sanitation

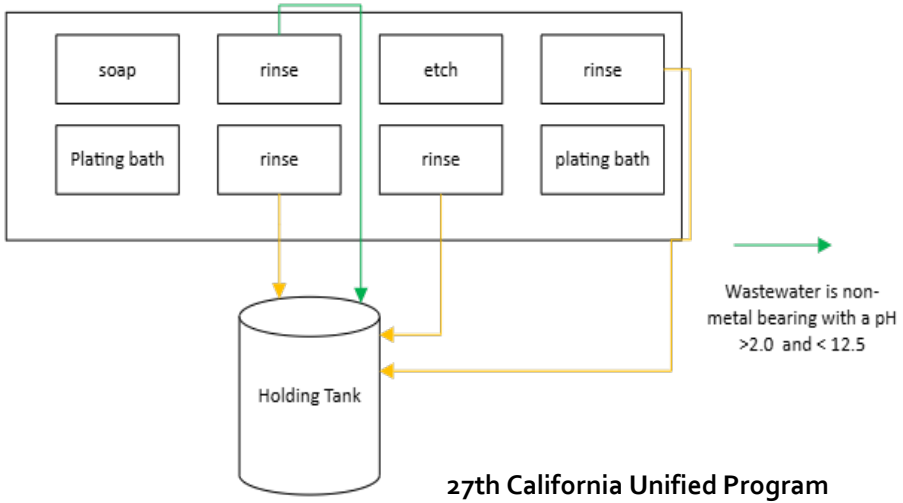
Adjustment of the pH of any process wastewater before being discharged to the sewer.

Common Treatment: pH Neutralization

CUPA



Sanitation



Common Treatment: Metal Precipitation

CUPA

- Regulate if contains metals listed in T22 §66261.24(a)(2) at the listed TTLC and STLC limits.
- Determine the limits by testing using SW-846.

Sanitation

- Regulate if listed in CWA or permit
- EPA Test Method 200.7

When to Reach Out:

CUPA

- Is this hazardous waste?
- Does CUPA also have this pretreatment system in their inventory? Do they have any background info?
- Find my CUPA: Regulator Search

Sanitation

- Is this allowed to go down the drain?
- Does the sanitation also have this pretreatment system in their inventory? Do they have any background info?

When to Reach Out: Sanitation

When to Reach Out: Sanitation

Thank You

27th California Unified Program
Annual Training Conference
March 24-27, 2025

Q & A

Minh Le: minh.u.le@lacity.org
Emily Minson: eminson@ocsan.gov