TIERED PERMITTING OVERVIEW M-B1 March 20, 2023 Michael Dudasko



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Emphasis on Overview



But Not This Close

Closer Than This





Poll Question 1

Tell Me Your Role and Experience on Tiered PermittingROLEEXPERIENCE LEVEL

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- CUPA/Regulator
- Industry/Regulated Entity
- Consultant
- Other

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- Little Knowledge
- Somewhat Familiar
- Good Experience
- I Can Fake It

Tiered Permitting Overview – Agenda

- Background
- Overview of Tiers
- The Wastes and Treatment Processes
- Assessing Systems for Applicability
- FTU vs. TTU
- Compliance Requirements PBR
- Compliance Requirements CA
- Compliance Requirements CEL/CESW/CESQT
- Common Violations/Issues and Suggestions



Disclaimer



- You must refer to the regulations (CA Title 22, Div. 4.5), statutes [Health & Safety Code (HSC) Div. 20, Ch. 6.5], or DTSC Guidance
 - Abbreviated content in some references
 - Need to review the facts of each situation
- We will focus on more common industry situations
 - Not household hazardous waste collection facilities
 - Not school hazardous waste collection, consolidation, and



accumulation facilities

Background

- EPA (40 CFR 270) does not require a permit for the following hazardous waste treatment activities:
 - Totally enclosed treatment facilities
 - Directly connected to process equipment to avoid releases
 - Elementary neutralization units
 - Treatment of wastes hazardous solely due to corrosivity
 - Wastewater treatment units
 - Tank treatment prior to POTW/NPDES permitted discharge
 - Generator self-treatment in tanks or containers



California Statutory Differences

- California's Toxic Substances Control Program facility permitting predated RCRA regulations
- California became authorized to enforce RCRA on August 1, 1992

Measures were needed to correct regulatory misalignments



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California Statutory Differences

- AB 1772* overhauled the state permitting program and established a five-tier permitting system
 - Filled in 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 Tiered Permitting Program (TPP)





Morke

Facilities Subject to TPP

- California generators treating their own hazardous waste that is:
 - Non-RCRA hazardous waste
 - RCRA hazardous waste that does not need an EPA treatment permit
 - Totally Enclosed Treatment, Elementary Neutralization, Wastewater Treatment; or

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Generator treatment in tanks or containers



Treatment Tiers





Broad Definition of "Treatment"

Defined in HSC 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.

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Exclusions from Treatment

(b)(2)(A) Sieving or filtering liquid hazardous waste to remove solid fractions, without added heat, chemicals, or pressure, as the waste is added to or removed from a storage or accumulation tank or container. For purposes of this subparagraph, sieving or filtering does not include absorption, reverse osmosis, or ultrafiltration.



 (b)(2)(B) Phase separation of hazardous waste during storage or accumulation in tanks or containers, if the separation is unaided by the addition of heat or chemicals.



Exclusions from Treatment

- (b)(2)(C) Combining two or more waste streams that are not incompatible into a single tank or container if both of the following conditions apply:
 - (i) The waste streams are being combined solely for the purpose of consolidated accumulation or storage or consolidated offsite shipment, and they are not being combined to meet a fuel specification or to otherwise be chemically or physically prepared to be treated, burned for energy value, or incinerated.
 - (ii) The combined waste stream is managed in compliance with the most stringent of the regulatory requirements applicable to each individual waste stream.

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Exclusions from Treatment

- (b)(2)(D) Evaporation of water from hazardous wastes in tanks or containers, such as breathing and evaporation through vents and floating roofs, without the addition of pressure, chemicals, or heat other than sunlight or ambient room lighting or heating.
- (c) "Treatment" does not include the combination of glutaraldehyde or orthophthalaldehyde, which is used by medical facilities to disinfect medical devices, with formulations containing glycine as the sole active chemical, if the process is carried out on site.



Exclusions from Treatment

HSC 25201.12 "Notwithstanding any other provision of law, a hazardous waste facilities permit or other grant of authorization from the department... are not required for a facility, with regard to the facility's operation of a physical process to remove air pollutants from exhaust gases prior to their emission to the atmosphere, as permitted by an air pollution control district or an air quality management district, unless a permit is required for that operation pursuant to the federal act."

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Recycling (Brief Comment)

Not Subject to Tiered Permitting:

- HSC 25143.2(b) Not treatment if used/reused in industrial process or returned to original process (but no reclamation allowed) (Excluded Recyclable Materials or ERM)
- HSC 25143.2(c) Allows treatment without full or tiered permitting if waste generated on site is recycled on site and managed as hazardous waste
- HSC 25143.2(d) Identifies non-RCRA hazardous waste recycled in certain ways are ERM (some allow filtering, screening, grinding, sorting, etc.)



What Treatment May Look Like







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What Treatment May Look Like





Tips for Industry and Inspectors If you have a wastewater discharge to sewer or NPDES: Look upstream to determine all wastes that are discharged to sewer Are they hazardous at point of generation? Are the waste characteristics changed (i.e., "treated") by simply combining wastewater streams? Look for treatment chemicals (e.g., acids/bases for pH adjustment or flocculants) Ask about any prior processing of haz or non-haz wastes sent off site

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Tips for Industry and Inspectors

 It is not always in the wastewater discharge (Clamshell Evaporator for Drums of Wet Sludge)





What Treatment May Look Like



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Permit By Rule (PBR)

- Higher hazard waste streams (stronger acids, more metals, etc.)
- Higher volumes (varies by waste)
- More processes are permissible under this tier
- May include combination of waste treatment processes

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Cyanide waste streams



Conditional Authorization (CA)

- Usually a hazardous waste due to only one characteristic
- Often metal-containing wastewaters
- Limits are frequently:
 - 5,000 gallons per month
 - 45,000 pounds per month



Conditional Exemption (CE)

- Smaller quantities
- Less hazardous waste streams
- Low-risk treatment techniques
 - Container rinsing for purposes of making it empty (Section 66261.7)
 - Neutralization



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Program Has Evolved

- Some CE waste streams were not originally included and required CA or PBR, but are now CE
 - Demineralizer regeneration wastes
 - Biotech Clean-In-Place (CIP) kill wastes
 - Food wastes
 - Laboratory wastes







Point of Generation

- Not always clear
- Work upstream to find point of discard
 - Not always at sewer discharge
 - Could be discharge from process to line that ultimately goes to sewer
 - Look for other streams entering the wastewater line or the collection vessel/batch tank





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The DTSC Tiered Permitting Flowchart

The simplest and best reference (10/2017) – search "tiered permitting flowchart" at <u>www.dtsc.ca.gov</u>

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- Read as five columns:
 - Waste type and limits
 - Treatment techniques
 - Volume limits
 - Concentration limit (not always)
 - Applicable tier



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Wastes and Treatment Methods

See Supplemental Handout on Waste Streams and Allowable Treatment Methods

Waste Stream	Allowable Treatment Methods
1. Aqueous wastes with Chromium-VI	Reduction to Chromium-III
2a. Aqueous wastes with metals [listed in Section 66261.24(a)(2)] [CAM 17 List]	 Evaporation pH adjustment Precipitation or crystallization Ion exchange Reverse osmosis Metallic replacement Plating onto an electrode Electrodialysis Electrodialysis Electrowinning or electrolytic recovery Chemical stabilization Adsorption Phase separation







Examples CESQT < 500 lbs/mo./facility+ . Screening Magnetic ≤45,000 lbs/mo./unit CA* Separation 9 >45.000 lbs/mo. PBR Soils contaminated with metals T22, § 66261.24(a)(2 <500 lbs/mo./facility+</p> CESQT Chemical Stabilization PBR >500 lbs/mo. ENGINEERING, LLC 39 © Copyright 2023, Yorke Engineering, LLC Examples Distillation Neutralization . Separation (based on size magnetism or density) Reverse Osmosis Biological Processes 10 a ≤ 55 gallons/mo./facility+ CESQT Used oil, unrefined Oil Water oil waste, mixed oil, oil mixed with water Separators, or oil/water separator defined in **RO** Systems HSC, § 25250.1 PBR >55 gal./mo. Phase Separation (excluding supecritical fluid extraction) No Authorization - if not treatment (i.e., unaided by the addition of ENGINEERING, LLC heat or chemicals) 40 © Copyright 2023, Yorke Engineering, LLC

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Common Violations/Issues and Suggestions

Example 1 – Evaluating a Process





Example 1







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Common Violations/Issues and Suggestions



FTU vs. TTU

- Fixed Treatment Unit (FTU) remains at one site
 - 22 CCR 66260.10 "Fixed Treatment Unit" means any equipment which performs treatment as defined in this section and which is permanently stationed, or which is periodically assembled for use, at a single facility for the purpose of performing treatment, regardless of the period or frequency of treatment.
- Transportable Treatment Unit (TTU) can move from one site to another





Another Definition

22 CCR 66260.10 – "Unit" means a tank, a container, or a combination of tanks or tank systems and/or containers located together that are used in sequence to treat or accumulate one or more compatible hazardous waste streams. The devices are either plumbed together or otherwise linked so as to form one system. This definition only applies to Conditional Exemption, Conditional Authorization, and Permit By Rule operations.



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TTU Summary

- CE or PBR obtained by TTU owner/operator
- TTU notification forms sent to **DTSC**, not CUPA
- Must adhere to same waste stream, treatment method, and volume limits in TPP Flowchart
- Annual notification by March 1st or as specified



TTU Summary

- Site-specific notifications to DTSC
 - 21 days prior to work on each site (Form 1197)
 - Includes certification that local CUPA has been notified
 - Submitted by certified mail
- Follows same general standards for PBR or CE units
- Must only treat on-site generated waste



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- Generator Operating Standards
 - Must comply with 22 CCR Ch. 15, Generator Standards
 - Time limits for waste accumulation
 - LQG Tank Systems must be certified by P.E. at least every 5 years
 Uploaded in CERS for PBR units
 - Containers meet Section 66264.175, which includes secondary containment



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PBR Requirements

Recordkeeping

- Waste Analysis Plan [Section 66265.13(b)]
 - Parameters to be monitored
 - Test methods
 - Sampling frequency and techniques
 - Methods to determine effective treatment
- Inspection Schedule [Section 66265.15(b)]
 - What, when, and how equipment will be inspected



- Recordkeeping (cont.)
 - Training documents [Section 66265.16(d)]
 - SB 673 enhanced training includes emergency response training, all facility awareness training, and function specific training; DOT training, if offsite shipments are DOT HazMat
 - Contingency Plan (Section 66265.52)
 - Most recent CUPA Notification [Section 67450.2(b)(2)]
 - Air District Permit if required [Section 67450.3(c)(8)(f)]

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PBR Requirements

- Recordkeeping (cont.)
 - Documentation related to Environmental Investigation (Section 67450.7) within 1 year
 - Phase 1 Environmental Assessment to document past releases, spills, etc. from facility (DTSC Form 1151)
 - Corrective action workplan within 90 days

 Documentation of any convictions, judgements, settlements, or orders resulting from environmental violations concerning the operation of the facility within previous 3 years [Section 67450.2(b)(3)(F)]







- Closure Details
 - Within 90 days of treating last volume of HW; treat or remove all HW per the Closure Plan
 - OR demonstrate that longer than 90 days is required
 - Complete closure within 180 days
 - Notify CUPA at least 15 days prior to completing closure (often overlooked)
 - Continue to comply until closure certification is submitted after being signed by P.E. and owner/operator

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PBR Closure





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PBR Closure



Before Closure



After Closure



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PBR Closure

Another Unit – Before Closure

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PBR Closure

Another Unit – Before Closure



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PBR Closure – Report

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■ Financial Assurance (Section 67450.13)

Prepare written closure cost estimate for each unit

- Actual cost to close (adjust for changes)
- May consider using own staff/equipment and salvage value of wastes/treatment equipment
- Estimate is submitted in CERS
- Adjusted annually for inflation by March 1st



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PBR Requirements

		Closure Cost Calculations		
ltem No.	Activity	Comment	Cost 2013	Cost 2020 (Adj. for inflation)
1	Removal, Treatment, or Disposal of Waste Inventories	Removal will be performed in-house. -Treatment of remaining waste streams will be performed in- house. -Treated water will be discharged to sewer. -Waste sludge to be hauled off-site.	\$ 2,328.00	\$ 2,481.06
2	Removal and disposal of any residual grit, sand, and debris. -The main area (and adjacent) is entirely concrete, with 6" concrete berms, thus there is no exposed soil that needs to be removed. -Waste water treatment sump will be emptied of both sediment and water.	Removal will be performed in-house. -No exposed soil is present, sub-concrete contamination is likely minimal/non-existent. -(based on contractor estimate)	\$ 975.00	\$ 1,039.11
2	Decontamination of equipment and infrastructure by pressure washing.	Decontamination of equipment will be performed in-house (approximately 2 days).	\$ 500.00	\$ 532.87

(Note – multiplier is 1.071 for 2022 to 2023)

	Price	Deflator Calculation	S
Year	Q3 GDP	Increase Ratio	Comments
2012	105.629	-	From 4Q 2012
2019	112.574	1.065748989	Accessed 2/12/2020



- Financial Assurance (cont.)
 - If estimate <\$10,000 submit statement certifying facility can fund closure needs
 - If estimate >\$10,000 obtain financial assurance for closure naming CUPA

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 Closure trust fund, surety bond, closure letter of credit, closure insurance, corporate financial test



PBR Requirements

- Fees \$4,600* each year (or partial year) plus local CUPA fees (optional)
- Plot Plan showing PBR Unit location on site
- Mark exterior with owner/operator Generator ID # and Unit Identifier
- Security Prevent unknowing entry, minimize unauthorized entry
 - 24-hour surveillance (guards, personnel, video)
 - Gates or barriers to control entry

*To be set by Board of Environmental Safety for '23-'24 up to \$9,200 and then escalates annually by Cost of Living



PBR Requirements – Cyanide Waste Treatment

- Total cyanide limited to 5,000 mg/L after dilution
- Written approval from POTW required
- Residual solids are recycled for metals recovery
 Justification required by Jan. 30th if not recycled
- Comply with Best Management Requirements (e.g., holding racks, countercurrent rinsing, evaluate non-cyanide alternatives every 4 years)
- Initial and annual training for handlers of cyanide solutions, rinse waters, or wastes

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PBR Requirements









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Conditional Authorization Requirements (HSC 25200.3)

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Mostly Similar to PBR

- Treat only identified wastes, by listed treatment methods, in specified quantities
 - Generally limited to no more than 5,000 gallons or 45,000 pounds per month
- Notification via CERS at least 60 days prior
- Maintain record of any environmental violations for previous 3 years (with initial notification)
- No annual notification required



*Not listed for PBR

Conditional Authorization Requirements (Similar to PBR)

- Generator standards in 22 CCR Ch.15, accumulation time limits, marking/labeling, etc.
- LQG Tank Systems must be certified by P.E. (every 5 years)
- Containers meet Section 66264.175, which includes secondary containment

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- Recordkeeping
 - Inspection Schedule
 - Written Operating Instructions
 - Record data on waste concentrations, amounts



*Not listed for PBR

Conditional Authorization Requirements (Similar to PBR)

- If discharge to sewer, records that show compliance with permit
- Annual Waste Minimization Statement
- Tanks must have secondary containment and have
 P.E. integrity assessment (5 years)
- Ancillary equipment not required to have containment if integrity assessed every 2 years





Conditional Authorization Requirements (Similar to PBR)

- Maintain Closure Cost Estimate
- Financial Assurance
 - Prepare written closure cost estimate for each unit
 - Actual cost to close (adjust for changes)
 - May consider using own resources and salvage value of wastes/treatment equipment
 - Submit estimate in CERS, adjust annually by March 1st

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Conditional Authorization Requirements (Similar to PBR)

- Financial Assurance (cont.)
 - If estimate <\$10,000 submit statement certifying facility can fund closure needs
 - If estimate ≥\$10,000 obtain financial assurance for closure naming CUPA using mechanisms listed under PBR



Conditional Authorization Requirements (Similar to PBR)

- Security provisions as in PBR
- Closure
 - Closure Plan not required
 - Comply with proper closure in HSC 25200.3
 - Minimizes need for further maintenance and eliminates release of hazardous waste or constituents to the environment
 - Notify CUPA in writing when operations cease

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*Not listed for PBR

Conditional Authorization Requirements (Similar to PBR)

- Documentation related to Environmental Investigation within 1 year
 - Phase 1 Environmental Assessment to document past releases, spills, etc. from <u>facility</u> (DTSC Form 1151)
 - Corrective action workplan within 90 days if needed
- Fees \$4,600* each year plus local fees

*To be set by Board of Environmental Safety for '23-'24 up to \$9,200 and then escalates annually by Cost of Living



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Conditional Exemption [HSC 25201.5(a) and (c) and 25144.6(c)]

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- CE Small Quantity Treatment
 - No more than 500 pounds or 55 gallons/month
- CE Specified Waste Streams
 - No volume limits <u>except</u> for oil/water mixtures and separation sludges (<1,050 gals./mo. oil)
- CE Limited
 - No volume limit but <u>must</u> be collection of used oil from water and oil must be transported to off-site oil recycler



Conditional Exemption [HSC 25201.5(a) and (c) and 25144.6(c)]

- CE Commercial Laundries
 - Requires following management methods
 - Sound construction of containers and wash water conveyances (inspected twice a year)

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- Sludge collected and managed appropriately
- Written operating instructions/treatment record
- Inspection schedule and log
- Perform proper closure
- Fees



Conditional Exemption Requirements

- Treat only identified wastes by listed methods or waste in limited quantities
- Notification via CERS at least 60 days prior
- No annual notification
- Generator operating standards in 22 CCR Ch. 15, accumulation time limits, marking/labeling, etc.
 - LQG Tank Systems must be certified by P.E. (5 years)
 - Containers meet Section 66264.175, which includes secondary containment



Conditional Exemption Requirements

- Recordkeeping
 - Inspection schedule and log
 - Written operating
 - instructions
 - Record data on waste concentrations, amounts



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 If discharge to sewer, records that show compliance with permit

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Conditional Exemption Requirements

- **Exempt** from Financial Assurance Requirements
- No formal Closure Plan required
- Follow closure per HSC 25201.5(d)(8)
 - Remove waste and decontaminate residues, containment system, soils, structures
 - Notify CUPA you ceased operation and properly closed unit



Conditional Exemption Requirements

- LQG Tanks must have secondary containment and have P.E. integrity assessment (5 years)
- SQG Follow federal tank standards (secondary containment and P.E. certification not required)
- Ancillary equipment not required to have containment if integrity assessed every 2 years
- Record of any environmental violations for previous 3 years not required

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Conditional Exemption Requirements

- Fees
 - \$180* per unit (not adjusted for inflation) under DTSC
 - Or as billed by CUPA

*To be set by Board of Environmental Safety for '23-'24 up to \$360 and then escalates annually by Cost of Living



Into the Home Stretch





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Tiered Permitting – Common Violations

	Category	Description/Examples
	Unauthorized Treatment	Non-filer or incorrect tier, change in equipment
	Documentation	Not maintaining required documents (waste analysis plan, contingency plan, training, etc.)
	Tank Certifications	No assessment or 5-year reassessment, or assessment is inadequate (lacks information)
	FTU Markings	Not marking exterior with O/O, facility ID, unit ID
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Tiered Permitting – Common Violations

Category	Description/Examples
Records and Documents	Make documents available where FTU operates; submit signature page; maintain records for 3 years

Oftentimes, each facility had more than one violation



Suggested Actions - Industry

- Validate if 'treatment' of a hazardous waste is occurring
- Determine the point(s) of generation for each waste
- Confirm if an allowable treatment method is being employed for one of the specified waste streams
- Verify the treatment volume
- Validate that all the statutory/regulatory requirements to operate in the specified tier are being met

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Check date for recertification of hazardous waste tank(s)



Suggested Actions - Regulators

Before you go on site:

Review chemical inventory for treatment chemicals or wastes When on site:

- Look for wastewater discharge points and then work upstream
- Review wastewater discharge permit application
- Look for treatment chemicals (caustic, acid, flocculants, etc.)
- Equipment types filter presses, oil/water separators
- Are filter cake solids sent off site as a hazardous waste?
- Verify that activity is not exempt from definition of "treatment"
- Try to determine extent of treatment operation (what tanks, piping,

etc. are included)

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- Common Violations/Issues and Suggestions
- Supplemental Info CERS Screens



CERS Examples – PBR

Business Activities Page

Hazardous Waste Does your Facility... Does your facility generate Hazardous Waste? If yes, provide an EPA Identification Number (EPA ID). Does your facility treat hazardous waste on-site? Is your facility's treatment subject to financial assurance requirements (for Permit by Rule or Conditional Authorization)?





CERS	Examp	les –	PBR

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			Save Cancel	.
-Treatment Unit	Identification and De	etails		
Jnit Type/Tier 🔮	Unit ID# 🕶	Unit Name 🐖		
CESW	Number of Tanks 💀	Number Of Containers/Treatment Areas 😨	Monthly Treatment Volume W Unit Of Measure W	
OCEL	Specific Waste Type Treated (Narrative)		Treatment Process Description (Narrative)	
Basis for Not N	leeding Federal Perm	nit (Check all that apply)		
a. Treated Wa waste)	ste is not a Hazardous V	Vaste under Federal Law (California-only	f. Treatment in an accumulation tank or container within 90 days for over 1000 kg/month generators and 180 or 270 days for generators of 100 to 1000 kg/month.	0.
 a. Treated Wa waste) b. Treated in 1 Owned Treated 	ste is not a Hazardous V Naste Water Treatment I atment Works (POTW)/S	Vaste under Federal Law (California-only Jnits (Tanks) and Discharged to a Publicly ewering Agency or under an NPDES Permit	f. Treatment in an accumulation tank or container within 90 days for over 1000 kg/month, benerators and 100 or 270 days for generators of 100 to 1000 kg/month. g. Recyclable Autrials are Reclaimed to Recover Silver or other Precious Metals	0
 a. Treated Wa waste) b. Treated in 1 Owned Treatment c. Treatment 	ste is not a Hazardous V Waste Water Treatment I atment Works (POTW)/S in Elementary Neutraliza	Vaste under Federal Law (California-only Jnits (Tanks) and Discharged to a Publicly ewering Agency or under an NPDES Permit tion Units	f: Treatment in an accumulation tank or container within 90 days for over 1000 kg/month upervalues and 100 or 270 days for generators of 100 to 1000 kg/month. g. Recyclable Materials are Reclaimed to Recover Silver or other Precious Metais h. Emply Container Rinsing and/or Treatment	0
 a. Treated Wa waste) b. Treated in 1 Owned Treatment i c. Treatment i d. Treatment i 	ste is not a Hazardous V Naste Water Treatment I atment Works (POTW)/S in Elementary Neutraliza in a Totally Enclosed Tre	Naste under Federal Law (California-only Jnits (Tanka) and Discharged to a Publicity evening Agency or under an NPDES Permit tion Units atment Facility	f: Treatment in an accumulation tank or container within 90 days for over 1000 kg/month. energies and 100 or 270 days for generators of 100 to 1000 kg/month. g. Recyclable Materials are Reclaimed to Recover Silver or other Precious Metais h. Emply Container Rinsing and/or Treatment i. Other Basis (specify below)	0
 a. Treated Wa waste) b. Treated in 1 Owned Tree c. Treatment i d. Treatment i e. Federal Co approximation 	ste is not a Hazardous V Naste Water Treatment atment Works (POTW)/S in Elementary Neutraliza in a Totally Enclosed Tre anditionally Exempt Smai Jely 27 gallons, or Jess o	Naste under Federal Law (California-only Units (Tanka) and Discharged to a Publicly evening Agency or under an NPDES Permit tion Units atment Facility I Quantity Generator (generated 100kg, fi Auzardous waste in a calendar month)	f. Treatment in an accumulation tank or container within 80 days for over 1000 knjimonih penerators and 160 or 270 days for penerators of 100 to 1000 knjimonih g. Recyclable Materials are Reclaimed to Recover Silver or other Precious Metals h. Empty Container Rinsing and/or Treatment i. Other Basis (specify below)	0
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a. Treated Wa waste) b. Treated in 1 Owned Tre c. Treatment i d. Treatment i e. Federal Co approximat Residuals Man a. Discharge b. Discharge	ste is not a Hazardous V Maste Water Treatment It Istment Works (POTW)S In Elementary Neutralizza in a Totally Enclosed Tre nditionally Exempt Smail Vet 27 gallons, or less o agement Description non-hazardous aqueous non-hazardous aqueous	Naste under Federal Law (California-only Units (Tanks) and Discharged to a Publicity evening Agency under an NPDES Permit tion Units atment Facility I Guantify Generator (generated 190kg, f hazardous waste in a calendar month) (Check all that apply) waste UnDY or sever	F. Treatment in an accumulation tank or container within 90 days for own 1000 keylmonth uperators and 100 or 270 days for generators of 100 to 1000 kg/month. G. Recyclable Materials are Reclaimed to Recover Silver or other Precious Metais h. Emply Container Rinsing and/or Treatment L Other Basis (specify below) ermal Treatment h. Other Method of Disposal (specify below) aposal to Land	
 a. Treated Wa waste) b. Treated in 1 Owned Tree c. Treatment i d. Treatment i e. Federal Co approximation a. Discharge b. Discharge c. Dispose of 	ste is not a Hazardous V Waste Water Treatment Marke Works (POTNy)S in Elementary Neutraliza in a Totalty Enclosed Tre and Totalty Enclosed Tre enditionalty Exempt Smal ley 27 gallons, or less o agement Description non-hazardous aqueous Non-hazardous aqueous Non-hazardous solici W wollon	Naste under Federal Law (California-only Units (Tanks) and Discharged to a Publicly wering Agency or under an NPDES Permit tion Units attment Facility (Dauntity Generator (generated 100kg, f hazardous waste in a calendar month) (Check all that apply) waste to POTW or sever e. Th waste under a NPDES permit e. Th aste Residues at an Offsile Location e. C. Fu	f. Treatment is an accoundation tank or container within 80 days for over 1000 kg/month generators and 100 or 270 days for generators of 109 to 1000 kg/month generators f. Excyclable Materials are Reclaimed to Recover Silver or other Preclous Metals g. Recyclable Materials are Reclaimed to Recover Silver or other Preclous Metals h. Empty Container Rinsing and/or Treatment i. Other Basis (specify below) man Treatment h. Other Method of Disposal (specify below) rether Treatment Secondary Containment Installation Date (If Required)	0

CERS Examples – PBR

			Save Carcer	
-Treatment Unit	Identification and D	etails		
Unit Type/Tier 🥹	Unit ID# 🥺	Unit Name 🕺		
CESQT	FTU-1	Metal Precipitation		
CESW CA	Number of Tanks 😨	Number Of Containers/Treatment Areas @	Monthly Treatment Volume Unit Of Measure Pounds Gallons	
CEL	Specific Waste Type 1	Freated (Narrative) 🤨	Treatment Process Description (Narrative)	
	Ag. waste with metals		Elocculation and precipitation	
 b. Treated in Owned Tre c. Treatment d. Treatment e. Federal Co approxima 	Waste Water Treatment atment Works (POTW)/ in Elementary Neutraliza in a Totally Enclosed Tre nditionally Exempt Sma tely 27 gallons, or less o	Units (Tanks) and Discharged to a Publicly levering Agency or under an NPDES Permit stion Units eatment Facility II Quantity Generator (generated 100kg, of hazardous waste in a calendar month)	g. Recyclable Materials are Reclaimed to Recover Silver or other Precious Metals h. Empty Container Rinsing and/or Treatment i. Other Basis (specify below)	
Residuals Man	agement Description	n (Check all that apply)		
🖌 a. Discharge	non-hazardous aqueous	s waste to POTW or sewer 🛛 🔲 e. T	hermal Treatment h. Other Method of Disposal (specify below)	
b. Discharge	non-hazardous aqueous	s waste under a NPDES permit 🛛 🗍 f. [isposal to Land	
	Nen bezerdeus Colid M	lasta Residuas at an Offaita Lasatian	urther Treatment Secondary Containment Installation Date //f Required)	
 c. Dispose of 	Non-nazaruous sonu vi	aste Residues at all Olisite Location — g. r	arther freadment Secondary containment instantation bate (in Required)	



ENGINEERING, LLC

CERS Examples – PBR



Permit by Rule (PBR) - Waste and Treatment Process Combinations

1. Aquecus wastes containing hexaviant chromium may be treated by the following process:

Reduction of hexavalent chromium to trivalent chromium with sodium bisulfite, sodium metabisulfite, sodium thiosulfite, ferrous sulfate, ferrous sulfate, ferrous sulfate, ferrous sulfate, for sulfare dioxide provided both pH & addition of the reducing agent are automatically controlled

2. Aquecus wastes containing metals listed in Title 22, CCR, Section 66281.24(a)(2) and/or fluoride salts may be treated by the following technologies:

PH Adjustment / Neutralization

Phase Separation by Filter, Centrifuge, or Gravity Settling

- Ion Exchange
- Reverse Osmosis
- Metallic Replacement
- Plating onto an Electrode
- Electrodialysis
- Electrowinning or Electrolytic Recovery
 Chemical Stabilization Using Silicates or Cementitious Reactions
- Evaporation
- Adsorption
- 3. Aqueous wastes with total organic carbon less than 10% as measured by EPA Method 9060 and less than 1% total volatile organic compounds as measured by EPA Method 8240 may be treated by the following technologies:

At least one Waste and Treatment Combination must be provided.

- Phase separation by filter, centrifuge, or gravity settling, but excluding super critical fluid extraction
- Adsorption

Air stripping or steam stripping

- Distillation
- Biological processes conducted in tanks or containers and utilizing naturually occuring microorganisms
 Photodegradation using ultraviolet light, with or without the addition of hydrogen peroxide or ozone, provided the treament is conducted in an enclosed system

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ADDITION CHIGH CIGH ASSUMPTION	ce Requirements-		
not required to provide a mechani	sm because: mate is less than or equal to \$10,000, or 🖗		
Exemption From Financial Assurate	ance - Other Թ ce - <30 Days Per Year ℗		
ective Date 💀 1/2019	Financial Institution, Insurance or Surety Co Legbreak Lending	ompany / Other Organ	ization
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CERS Examples – PBR



Must submit P.E. tank certification for PBR Units



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Any Questions?

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