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CLOSURE COST ESTIMATES
PERMIT BY RULE and CONDITIONAL AUTHORIZATION

Background Information

Closing a hazardous waste site can be a complex and expensive undertaking. This guidance document intends to provide information you can use to estimate closure costs for your onsite treatment units. Under the California Hazardous Waste Control Law, hazardous waste facilities[1] operating under the Permit by Rule (PBR) or Conditionally Authorized (CA) onsite hazardous waste treatment tiers must provide financial assurance to guarantee that there will be adequate funds for the closure and cleanup of hazardous waste treatment units. Conditionally exempt treatment units do not require financial assurance. If you are not treating hazardous waste on-site under the CA or PBR tier, you do not need to prepare a closure cost estimate.

- At closure, all hazardous wastes and hazardous waste residues must be removed from the treatment unit's containment systems. All contaminated components of the unit must be decontaminated, treated or removed. Unit closure must include all components such as tanks, secondary containment, piping, and sumps that were part of a treatment system. Closure costs do not need to include post-closure or liability costs.

What Is Required For Closure Cost Estimates?

- Written closure cost estimates (CCEs) for each PBR and CA unit must be available at the facility.
- CCEs must be updated for inflation by March 1st of each year and kept on site.
- CCEs totaling over $10,000 for a facility require a financial assurance mechanism.

What Costs Are Typically Included In The Closure Estimate?

- Removal and treatment (on-site or off-site) of wastes, including residues and debris
- Removal and disposal of contaminated soil
- Packaging and transportation
- Disposal of waste
- Decontamination of equipment, structures, and system components if they are to remain on site
- Demolition and removal of equipment, structures, and system components as needed
- Labor, materials and equipment
- Sampling and analysis to confirm: decontamination of equipment and structures; and removal of contamination from soils (1 wipe test/tank and 4 soil samples/treatment unit are recommended)
- Certification or other demonstration of closure (Professional Engineer's fee for PBR unit closure)
- Indirect costs such as supervision and contingency fees
- Miscellaneous expenses

Salvage value of a facility's assets, such as equipment, structures and land, may be used to offset the cost of closure. Submit this information as an attachment to the Certification of Financial Assurance.

[1] Except Federal and State owned facilities.

How Are Closure Cost Estimates Updated?

Closure cost estimates must be updated annually for inflation by March 1st of each year. To do this, take the last CCE and multiply by the inflation factor for the appropriate year(s). The result is the new CCE. CCEs must also be updated whenever a change occurs that increases the cost of closure. It is important to review CCEs annually to make sure that all costs associated with closure are accurately represented.

YEAR	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
FACTOR	1.027	1.015	1.023	1.013	1.020	1.010	1.015	1.021	1.024	1.011	1.015	1.021

For current inflation factors contact the Department of Toxic Substances Control, Financial Assurance Section at (916) 255-3628.

Related Requirements:

- **When is a Financial Assurance Mechanism needed?**
  If all closure cost estimates for a facility total more than $10,000.00, financial assurance must be obtained via one of the approved mechanisms. Approved mechanisms include trust funds, surety bonds, letters of credit, closure insurance, and financial test & corporate guarantee, as described in CCR section 66265.143. The CUPA (Certified Unified Program Agency, which is this department's Hazardous Materials Division) must be shown as the beneficiary when one is required. Depending on the type of mechanism, various documents must be submitted to the CUPA. The Financial Assurance mechanism must be updated as needed to reflect the cost of the CCEs. Contact your area specialist for forms and details.

- **When is the Certification of Financial Assurance form needed?**
  The Certification of Financial Assurance form must be submitted to the CUPA with the initial Notification of Onsite Hazardous Waste Treatment for PBR and CA units. It is also required when claiming an exemption from financial assurance requirements due to closure costs totaling $10,000 or less, or when changing financial assurance mechanisms. This form is available online: http://www.sdcounty.ca.gov/deh/hmd/docs/hm-9707-upcf_07-02.doc.

- **When is a written Closure Plan needed?**
  A written Closure Plan is required only for PBR units, see CCR section 67450.3(c)(11)(B).

Additional Resources:

- Department of Toxic Substances Control at: www.dtsc.ca.gov
- U.S. EPA at: www.epa.gov
- "RCRA Guidance" Closure/Post-Closure and Financial Responsibility Requirements Hazardous Waste Treatment Storage and Disposal Facilities (EPA 530-SW-86-009, April 1986)
- Cost information can be obtained over the phone in many cases from contractors, consultants, analytical labs, and treatment and/or disposal facilities.
- CCR 67450.13 has requirements for closure; 66265.143 lists types of financial assurance mechanisms
- Contact your Area Specialist if you need further assistance.

Attachments:

- Sample Closure Cost Estimate Form - a suggested format for preparing a CCE
- Sample Closure Cost Estimate - provides additional guidance on completing CCEs

SAMPLE CLOSURE COST ESTIMATE FORM

DESCRIPTION	QUANTITY	UNITS (gallons, pounds, type of samples)	COST PER UNIT	TOTAL COST
A. Cost for remova1/disposal/treatment of:				
1. Waste in containers				
2. Waste in tanks				
3. Wash water/residue from closure activities				
4. Other wastes				
		Subtotal:		
B. Costs for removal/disposal/treatment of:				
1. Containers				
2. Tanks				
3. Ancillary equipment				
4. Structures/buildings				
		Subtotal:		
C. Decontamination costs of:				
1. Containers				
2. Tanks				
3. Ancillary equipment				
4. Structures/buildings				
5. Additional equipment				
6. Removal/disposal of wastewater from decon.				
		Subtotal:		
D. Transportation costs of:				
1. Wastes from containers				
2. Wastes from tanks				
3. Tanks and containers				
4. Structures/buildings/equipment				
		Subtotal:		
E. Sampling costs (QC soil and wipe samples)				
1. Containers				
2. Tanks				
3. Ancillary equipment				
4. Structures/buildings				
5. Soil (coring and labor)				
6. Wash water/residue from closure activities				
		Subtotal:		
F. Closure Certification Costs				
1. Preparation of certification (clerical)				
2. Preparation of certification by P.E				
3. Inspection by Certified P.E.				
4. Review by Certified P.E.				
		Subtotal:		
G. Other Costs				
1. Cost of drums/containers, etc. used to transport waste/equipment/debris				
2. Labor costs (number of people x number of days x number of hours per day)				
3. Equipment rental costs (type of equipment and cost per hour/day x number of hours/days)				
		Subtotal:		
Sum of Parts A, B, C, D, E, F & G:		**Subtotal:**		
H. Salvage value of facility structures, equipment, land, etc. (attach detailed information)		**Amount:**		
Subtract the value of H from the Sum of parts A, B, C, D, E, F & G		**Total Closure Costs:**		

SAMPLE CLOSURE COST ESTIMATE

DESCRIPTION	QUANTITY	UNITS (gallons, pounds, type of samples)	COST PER UNIT	TOTAL COST
A. Cost for remova1/disposal/treatment of:				
1. Waste in containers				
Waste Code 181, inorganic solid waste	5.00	cu. yd.	$ 325.00	$ 1,625.00
Waste Code 555, aged off-spec materials	2.00	55 gal. drum	$ 400.00	$ 800.00
2. Waste in tanks				
Waste Code 121, alkaline waste with metals	4.00	275 gal. tote	$ 450.00	$ 1,800.00
Waste Code 723, liquids with chrome VI	2.00	275 gal. tote	$ 585.00	$ 1,170.00
Waste Code 711, liquids w/cyanides >1000 ppm	2.00	275 gal. tote	$ 625.00	$ 1,250.00
Waste Code 792, acid sludge with metals	3.00	55 gal. drum	$ 225.00	$ 675.00
3. Wash water/residue generated from closure activities	0			0
4. Other wastes	0			0
			Subtotal: $	**7,320.00**
B. Costs for removal/disposal/treatment of:				
1. Containers				
Waste Code 513, empty cyanide containers	3.00	15 gal. carboy	$ 55.00	$ 165.00
2. Tanks				
Waste Code 181, disposal of empty tanks	2.00	cu. yd.	$ 325.00	$ 650.00
3. Ancillary equipment				
Waste Code 181, disposal of empty piping	1.00	cu. yd.	$ 325.00	$ 325.00
4. Structures/buildings				
Waste Code 181, disposal of contaminated walls	1.00	cu. yd.	$ 325.00	$ 325.00
			Subtotal: $	**1,465.00**
C. Decontamination costs of:				
1. Containers				
Waste Code 711, liquids with cyanides >1000	1.00	55 gal. drum	$ 325.00	$ 325.00
2. Tanks				
Waste Code 121, liquids with metals	0/ Waste treated on site with authorization			
Waste Code 121, liquids with metals	0/ Waste treated on site with authorization			
3. Ancillary equipment				
4. Structures/buildings				
Waste Code 121, decontamination of floors	1.00	275 gal. tote	$ 325.00	$ 325.00
5. Additional equipment				
6. Removal/disposal of wastewater from decon.				
			Subtotal: $	**650.00**
D. Transportation costs of:				
1. Wastes from containers	Included in Above Costs			
2. Wastes from tanks	Included in Above Costs			
3. Tanks and containers	Included in Above Costs			
4. Structures/buildings/equipment	Included in Above Costs			
			Subtotal: $	**-0-**

SAMPLE CLOSURE COST ESTIMATE

DESCRIPTION	QUANTITY	UNITS (gallons, pounds, type of samples)	COST PER UNIT	TOTAL COST
E. Sampling costs (QC soil and wipe samples)				
1. Containers				
2. Tanks				
Sampling and lab analysis of tanks that remain on site	5.00	Wipe Samples	$ 200.00	$ 1,000.00
3. Ancillary equipment				
4. Structures/buildings				
Sampling & lab analysis of walls	8.00	Wipe Samples	$ 200.00	$ 1,600.00
5. Soil (coring and labor)				
Sampling and lab analysis of floor and subsurface soil	12.00	Soil Samples	$ 225.00	$ 2,700.00
6. Wash water/residue generated from closure activities				
Waste profile samples	6.00	TSDF samples	$ 95.00	$ 570.00
			Subtotal: $	**5,870.00**
F. Closure Certification Costs				
1. Preparation of certification (clerical)				$ 250.00
2. Preparation of certification by P.E				$ 750.00
3. Inspection by Calif. Registered P.E.				$ 2,250.00
4. Review by Calif. Registered P.E.				$ 1,800.00
			Subtotal: $	**5,050.00**
G. Other Costs				
1. Cost of drums/containers, etc. used to transport waste products/equipment				$ 350.00
2. Labor costs (number of people **x** number of days **x** number of hours per day)	4 people x 10 days x 8 hrs = 320 hrs	Hours	$18.00/hr.	$ 5,760.00
3. Equipment rental costs (type of equipment and cost per hour/day **x** number of hours/days) Pumps, forklifts, bobcat, PPE, jack hammer, hand tools				$ 3,500.00
			Subtotal: $	**9,610.00**
Sum of Subtotals of Parts A, B, C, D, E, F & G			**Subtotal: $**	**29,965.00**
H. Salvage value of the facility equipment (detailed information should be attached)				**$ - 5,210.00**
TOTAL CLOSURE COSTS **Subtract the value of H from the sum of subtotals from Parts A, B, C, D, E & G**				**$ 24,755.00**