

**Part III  
Attachment III-J**

**COST ESTIMATES FOR CLOSURE AND POST-CLOSURE CARE**

**Pescadito Environmental Resource Center  
MSW No. 2374  
Webb County, Texas**

**PESCADITO**  
ENVIRONMENTAL RESOURCE CENTER

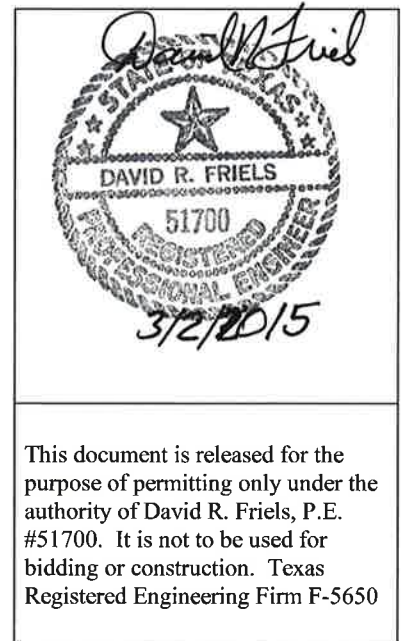
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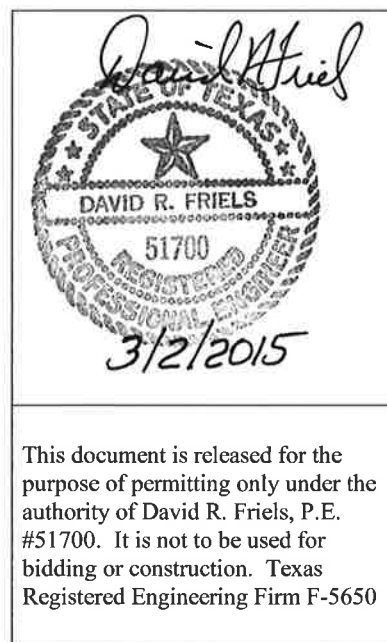
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### APPENDIX III-J.1

#### Closure and Post-Closure Care Cost Estimates



## 1.0 INTRODUCTION

The cost estimate for closure and post-closure care of the Pescadito Environmental Resource Center (PERC) has been prepared consistent with the requirements of Title 30, Chapter 330, Subchapter L. The purpose of this attachment is to provide written cost estimates for a third party to close the largest waste area of the landfill that could potentially be open and to conduct post-closure care activities in accordance with the facilities approved Closure and Post-Closure Care Plans and consistent with §330.503 and 507. Additionally, costs are included for closure of the liquid waste solidification unit and the citizen convenience center in accordance with §330.505. Costs are also provided for decommissioning and closure of the contaminated water storage facility once it is no longer required. A copy of the approved Attachment III-J, Closure and Post-Closure Care Cost Estimates will be placed in the Site Operating Record prior to receipt of waste.

The landfill waste disposal area is divided into north and south units with areas of 320.5 and 340.2 acres, respectively. The total permitted waste disposal area is 660.7 acres and permitted solid waste volume is 223,316,800 cubic yards (solid waste and daily cover). The projected solid waste capacity is 195,960,492 tons. The facility is located in an arid climate and has a permitted water balance (WB) final cover consisting of the following (from top down):

- 7 inches of erosion layer
- 30 inches of infiltration layer

The liquid solidification unit and citizen convenience center will require closure but will not impact post-closure care costs.

PERC will retain the right of entry and maintain all rights-of-way to the closed landfill in order to conduct site maintenance, maintain final cover, vegetation, drainage and perform corrective action and remediation as needed.

Information on contacting the responsible person is provided in Attachment III-I, Post-Closure Care Plan.

## **2.0 CLOSURE AND POST-CLOSURE CARE COSTS**

### **2.1 Closure Costs**

The requirements for a closure cost estimate are provided in §330.503 (related to landfills) and §330.505 (related to storage and processing units). A detailed written cost estimate, in current dollars, showing the cost of hiring a third party to close the largest area of the landfill ever requiring a final closure at any time during the active life of the facility has been prepared and is included in Appendix A. Based on the current closure schedule, the largest area that would require final closure is projected to not exceed 88 acres. In addition to costs to close the solid waste landfill, closure costs include estimated costs to close the liquid solidification unit and the citizen's convenience center. The closure costs are based on completing the requirements outlined in the approved Closure Plan, Attachment III-H to the SDP. Contingency costs have been included for changes in costs, changes in monitoring, etc.; however, no costs for corrective action have been included. Should corrective action be required at a later date, the cost estimate will be prepared in accordance with §330.509.

### **2.2 Post-Closure Costs**

The requirements for a post-closure care cost estimate are provided in §330.507. The post-closure care period has been established by RCRA Subtitle D to be 30 years. During this period, maintenance must be ongoing to assure the integrity and effectiveness of the final cover system, monitoring systems, leachate collection system, landfill gas management system, drainage system, and erosion protection facilities. The post-closure care cost estimate provides a cost for the routine maintenance and monitoring of the final cover system and re-establishment of vegetation or other erosion controls. Costs are included for annual engineering inspections and design of repairs. PERC will retain the right of entry and maintain all rights-of-way to the closed landfill in order to conduct site maintenance, maintain final cover, vegetation, drainage and perform corrective action and

remediation as needed. This estimate for routine maintenance and monitoring is a cumulative cost throughout the 30-year post-closure care period. Post-closure care costs have been provided for maintenance and semi-annual monitoring of the groundwater monitoring system consistent with §330, Subchapter J. Costs have also been provided for maintenance and operation of the landfill gas monitoring system and quarterly landfill gas monitoring in accordance with §330, Subchapter I. The PERC will maintain and operate the leachate collection system in accordance with 30 TAC §330.331 and §330.333.

### **3.0 CLOSURE AND POST-CLOSURE CARE COST ESTIMATES**

Closure and Post-Closure Care Cost Estimates were prepared consistent with §330.503, §330.505, and §330.507 and are presented in Appendix A. The cost estimates are based closing a maximum area of 88 acres of waste fill (i.e., the projected maximum area with waste in place that has not received final cover). Additionally, costs are included to close the liquid waste solidification unit, citizen convenience center, and contaminated water storage facility. The landfill will be closed using the approved WB final cover system.

The cost estimates include the assumption that all the required groundwater monitoring wells and the landfill gas monitoring probes have been installed. The total number of groundwater monitoring wells required is 38, and landfill gas management plan includes 28 landfill gas monitoring probes. It is assumed that leachate may be generated during the first five years of post-closure; therefore, leachate collection and treatment for 5 years is included in the cost estimate. At the end of the 5-year period or once no longer needed, the contaminated water storage facility will be closed and decommissioned. Items have also been included for surveying, engineering, and contingency.

The post-closure care costs include projected costs to provide the required maintenance and monitoring for the entire facility for the specified post-closure care period of 30 years.

## **4.0 FINANCIAL ASSURANCE AND COST ESTIMATE ADJUSTMENTS**

### **4.1 Financial Assurance**

The owner or operator is required in Subchapter L to establish financial assurance for closure and post-closure care of the landfill, liquid waste solidification unit, and citizen's convenience center in accordance with Chapter 37, Subchapters R and J. Financial assurance will be based on annual adjustments to the closure/ post-closure care cost estimates. During the active life of the facility, PERC will annually adjust the cost estimates for inflation within 60 days prior to the anniversary date of the establishment of the financial instrument(s). The adjustment may be made by recalculating the maximum costs of closure in current dollars, or by using an inflation factor derived from the most recent Implicit Price Deflator for the Gross National Product published by the United States Department of Commerce in its Survey of Current Business. The inflation factor is the result of dividing the latest published annual deflator by the deflator for the previous year. The first adjustment is made by multiplying the closure cost estimate by the inflation factor and the result is the adjusted cost estimate. Subsequent adjustments are made by multiplying the latest adjusted cost estimate by the latest inflation factor. Increases to the financial assurance amounts that are made by use of the previously approved costs and the application of the annual inflation factor do not require a permit modification.

### **4.2 Cost Estimate Revisions**

An increase in the closure or post-closure care cost estimate and the amount of financial assurance will be made if changes to the final closure or post-closure care plan or the facility conditions (e.g., the largest area to be closed) increase the maximum cost.

A reduction in the closure or post-closure care cost estimate and the amount of financial assurance may be submitted if in the future the maximum area to be closed is reduced. If any time in the remaining site life this cost estimate exceeds the maximum costs of closure or post-closure care, PERC will submit written notice to TCEQ. The notice will



include a justification for the reduction of the cost estimate(s) and the amount of financial assurance.

Requests for revisions to the closure and post-closure cost estimates or reductions to the financial assurance shall be submitted to the TCEQ as a no notice permit modification consistent with §305.70(J)(30) or (31).

**APPENDIX III-J.1**

**CLOSURE AND POST-CLOSURE CARE COST ESTIMATES**

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Pescadito Environmental Resource Center  
 Summary  
 Closure and Post-Closure Care Costs

<b>TOTAL CLOSURE AND POST-CLOSURE CARE COSTS</b>			
	<b>Closure</b>	<b>Post-Closure</b>	<b>Total</b>
Landfill Unit	\$4,582,185	\$5,971,800	\$10,553,985
Liquid Solidification Unit and Citizen's Convenience Center	\$40,444	\$0	\$40,444
<b>TOTAL:</b>	<b>\$4,622,629</b>	<b>\$5,971,800</b>	<b>\$10,594,429</b>

Note: All calculations are carried to full decimal values but numbers as shown are rounded.



Closure Costs  
Pescadito Environmental Resource Center

Permitted Waste Area: Acres = 660.7 Square Feet = 28,780,092  
Largest Area to be closed: Acres = 88 Square Feet = 3,833,280

Item Description	Unit	Unit Cost	Quantity	Cost
<b>Engineering</b>				
Surveying Permitted Area, 660.7 Acres	acre	\$ 45.00	660.7	\$ 29,732
Evaluations, Plans, and Specifications	acre	\$ 310	88	\$ 27,280
CQA (survey, inspection & testing)	acre	\$ 4,400	88	\$ 387,200
Closure Certification, per event	LS	\$ 9,000	1	\$ 9,000
<b>Total Engineering Costs</b>				<b>\$ 453,212</b>
<b>Construction</b>				
7" Erosion Layer	cy	\$ 5.00	82,818	\$ 414,089
30" Infiltration Layer	cy	\$ 3.00	354,933	\$ 1,064,800
General Fill, 1 foot	cy	\$ 3.00	141,973	\$ 425,920
Seeding & Vegetation	acre	\$ 1,750.00	88	\$ 154,000
Drainage and Storm Water Control	acre	\$ 2,600.00	88	\$ 228,800
LFG Control System	acre	\$ 15,000.00	88	\$ 1,320,000
Liquid Solidification & Transport	cy	\$ 18.50	1,800	\$ 33,300
Backfill Liquid Solidification Unit	cy	\$ 3.00	1,800	\$ 5,400
Loading & Disposing Materials from Convenience Center at Landfill	Trip	\$ 165.00	10	\$ 1,650
Steam Cleaning Convenience Center	LS	\$ 1,000.00	1	\$ 1,000
Close Contaminated Water Storage	LS	\$ 5,000.00	1	\$ 5,000
<b>Sub-Total Construction Costs</b>				<b>\$ 3,653,959</b>
Contingency		10%		\$ 365,396
Contract Performance Bond		2%		\$ 73,079
TCEQ Contract Admin/Legal Fees		1%		\$ 36,540
<b>Sub-Total Contingency &amp; Admin Costs</b>				<b>\$ 475,015</b>
<b>Total Construction Costs</b>				<b>\$ 4,128,974</b>
<b>TOTAL CLOSURE COSTS:</b>				<b>\$ 4,582,185</b>

Notes:

1. Surveying costs is based on 660.7 ac permit area, while other costs are based on closure area
2. Final Cover Costs are based on utilizing the permitted WB Final Cover System
3. Vegetation includes watering until vegetation is established
4. Storm Water Control includes construction of stormwater storage pond
5. Assume materials from liquid stabilization and citizen convenience center will be disposed in landfill
6. Contaminated water storage will be closed and decommissioned during post-closure period

Post-Closure Care Cost Estimate  
Pescadito Environmental Resource Center

Assume Closed Area = Permit Area: 660.7 Acres  
 Post-Closure Care Period Will Be: 30 Years  
 Number of GW Monitoring Wells: 38 Wells

No.	Item Description	Unit	Unit Cost	Quantity	Cost (30 yr)
1	Annual Site Inspections by Engineer	yr	\$ 3,000	30	\$ 90,000
2	Engineering - Review of Monitoring Results and Correctional Plans	yr	\$ 7,650	30	\$ 229,500
3	Maintain Slopes	yr	\$ 24,200	30	\$ 726,000
4	Re-establish surface vegetation/cover	yr	\$ 35,000	30	\$ 1,050,000
5	GW Sampling & Analysis	well-events	\$ 1,200	2,280	\$ 2,736,000
6	Methane Monitoring	yr	\$ 4,000	30	\$ 120,000
7	Leachate Treatment for 5 years	gal/yr	\$ 0.10	50,000	\$ 25,000
	<b>Sub-total</b>				<b>\$ 4,976,500</b>
	Contingency		10%		\$ 497,650
	Administration		10%		\$ 497,650
	<b>Post-Closure Care Costs</b>				<b>\$ 5,971,800</b>

Assumptions:

- 1 Site Inspections will be conducted annually with an average cost of \$3000 per trip  
An engineer will review inspection and monitoring reports & prepare corrective action plans
- 3 Maintain slopes includes minor filling and grading for 10 acres per year at \$2420 per acre
- 4 Approximately 20 acres of vegetation will be re-established each year at \$1750 per Acre
- 5 GW sampling and analysis will be conducted semi-annually at \$1200 per well per event  
38 wells x 2 events per year x 30 years = 2280 well-events
- 6 Methane monitoring will be conducted quarterly at \$1,250 per event, \$5000 per year
- 7 Leachate treatment will include treating an average of 50,000 gal/yr for 5 years

**Closure Cost Estimate**  
**Liquid Solidification Unit and Citizen's Convenience Center**  
**Pescadito Environmental Resource Center**

Facility Area, Acres:   1.1   Liquid Volume:   354,600   Gallons

ITEM DESCRIPTION	UNIT	UNIT COST	QUANTITY	COST
Surveying	LS	\$ 1,000.00	1	\$ 1,000
Engineering	LS	\$ 1,000.00	1	\$ 1,000
Loading and hauling soil for processing	cy	\$ 1.00	800	\$ 800
Solidifying liquid waste	hr	\$ 60.00	24	\$ 1,440
Loading and hauling solidified Waste	cy	\$ 1.00	800	\$ 800
Excavating, filling and grading	cy	\$ 1.60	18,000	\$ 28,800
Seeding	acre	\$ 731.82	4.0	\$ 2,927
Sub-total				\$ 36,767.28
Contingency			10%	\$ 3,676.73
<b>TOTAL CLOSURE COSTS:</b>				<b>\$ 40,444</b>

**Assumptions:**

1. Processing soil requirement is approximately one-half of liquid capacity.
2. Approximately one-half of capacity will be processed and hauled to active disposal area.
3. Average cuts and fills for final grading will be approximately 3 feet.