

CLOSURE AND POST-CLOSURE CARE COST ESTIMATES

Edinburg Regional Disposal Facility

Edinburg, Hidalgo County, Texas

TCEQ Permit MSW-956C

Submitted To: City of Edinburg
Department of Solid Waste Management
8601 North Jasman Road
Edinburg, Texas 78542 USA

Submitted By: Golder Associates Inc.
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GOLDER ASSOCIATES INC.
Professional Engineering Firm
Registration Number F-2578

INTENDED FOR PERMITTING
PURPOSES ONLY

July 2017
Revised: November 2017
Revised: January 2018

Project No. 1401491



Table of Contents

EXECUTIVE SUMMARY	ES-1
1.0 CLOSURE COST ESTIMATE.....	1
1.1 Annual Review	1
1.1.1 Closure Cost Increase	1
1.1.2 Closure Cost Reduction	1
1.2 Financial Assurance.....	2
2.0 POST-CLOSURE CARE COST ESTIMATE.....	2
2.1 Annual Review	3
2.1.1 Increase in Post-Closure Care Cost Estimate	3
2.1.2 Reduction in Post-Closure Care Cost Estimate.....	3
2.2 Financial Assurance.....	3

List of Appendices

Appendix III9A	TCEQ Closure Cost Estimate Form
Appendix III9B	TCEQ Post-Closure Cost Estimate Form
Appendix III9C	Current Evidence of Financial Assurance



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EXECUTIVE SUMMARY

30 TAC §§330.63(j) & 305.70(j)(30)

The City has included a cost estimate for closure and post-closure care in accordance with 30 TAC §330 Subchapter L and documentation required to demonstrate financial assurance as specified in 30 TAC §37 Subchapter R. The City may request as permit modification that does not require notice in accordance with 30 TAC §305.70(j)(30), for changes to a closure or post-closure care cost estimate required under 30 TAC §§330.503 or 330.507 that result in an increase/decrease in the amount of financial assurance required if the increase/decrease in the cost estimate is due to an increase/decrease in the maximum area requiring closure.

1.0 CLOSURE COST ESTIMATE

30 TAC §330.503(a)

The detailed written cost estimate, in current dollars, showing the cost of hiring a third party to close the largest waste fill area that could potentially be open in the year to follow and those areas that have not received final cover in accordance with Part III7, Closure Plan is included in Appendix III9A, TCEQ Closure Care Cost Estimate Form.

1.1 Annual Review

30 TAC §330.503(a)(1)

The City shall review the facility's permit conditions on an annual basis and verify that the current active areas match the areas on which closure cost estimates are based.

1.1.1 Closure Cost Increase

30 TAC §330.503(a)(2)

An increase in the closure cost estimate and the amount of financial assurance shall be made if changes to the final closure plan or the landfill conditions increase the maximum cost of closure at any time during the remaining active life of the unit.

1.1.2 Closure Cost Reduction

30 TAC §330.503(a)(3)

A reduction in the closure cost estimate and the amount of financial assurance may be approved if the cost estimate exceeds the maximum cost of closure at any time during the remaining life of the unit and the City has provided written notice to the TCEQ of the situation that includes a detailed justification for the reduction

of the closure cost estimate and the amount of financial assurance. The City may request a reduction in the cost estimate and the financial assurance as a permit modification.

1.2 Financial Assurance

30 TAC §330.503(b)

The City has established financial assurance for closure of the municipal solid waste units in accordance with 30 TAC §37, Subchapter R. Continuous financial assurance coverage for closure shall be provided until the facility is officially placed under the post-closure maintenance period and all requirements of Part III7, Closure Plan have been approved as evidenced in writing by the TCEQ.

In accordance with 30 TAC §37.131, during the active life of the facility, the current cost estimate will be adjusted annually for inflation within 60 days prior to the anniversary of the establishment of the financial instrument(s) used. The evidence of any additional financial assurance will be provided to the TCEQ within 30 days after the anniversary date of the first establishment of the financial assurance mechanism.

The adjustment for inflation may be made by recalculating the maximum cost of closure in current dollars, or by using an inflation factor derived from the most recent Implicit Price Deflator for Gross National Product published by the US Department of Commerce in the Survey of Current Business. The inflation factor is the result of dividing the latest published annual Deflator by the Deflator for the previous year. Multiplying the closure cost estimate by the inflation factor makes the first adjustment. The result is the adjusted closure cost estimate. Multiplying the latest adjusted closure cost estimate by the latest inflation factor makes subsequent adjustments. If the TCEQ approves a revised closure cost estimate prior to the annual inflation update, an additional update for inflation only is not required. The regular annual inflation update will resume the following year.

In accordance with 30 TAC §330.63(j), a copy of the financial assurance documentation for closure of the facility is included in Appendix III9C, Current Evidence of Financial Assurance.

2.0 POST-CLOSURE CARE COST ESTIMATE

30 TAC §330.507(a)

The City has provided in Appendix III9B, TCEQ Post-Closure Care Cost Estimate Form a detailed written cost estimate, in current dollars, of the cost of hiring a third party to conduct post-closure care activities for the municipal solid waste units, in accordance with the post-closure care plan. The post-closure care cost estimate used to demonstrate financial assurance in 30 TAC §330.507(b) shall account for the total costs of conducting post-closure care for the largest area that could possibly require post-closure care in the year

to follow, including annual and periodic costs as described in the post-closure care plan over the entire post-closure care period.

2.1 Annual Review

2.1.1 Increase in Post-Closure Care Cost Estimate

30 TAC §330.507(a)(1)

An increase in the post-closure care cost estimate and the amount of financial assurance provided under 30 TAC §330.507(b) shall be made if changes in the post-closure care plan or the unit conditions increase the maximum costs of post-closure care.

2.1.2 Reduction in Post-Closure Care Cost Estimate

30 TAC §330.507(a)(2)

A reduction in the post-closure care cost estimate and the amount of financial assurance provided under 30 TAC §330.507(b) may be allowed if the cost estimate exceeds the maximum costs of post-closure care remaining over the post-closure care period and the City has provided written notice to the TCEQ of the detailed justification for the reduction of the post-closure cost estimate and the amount of financial assurance. The City may request a reduction in the cost estimate and the financial assurance as a permit modification.

2.2 Financial Assurance

30 TAC §330.507(b)

The City has established financial assurance for the costs of post-closure care of the unit in accordance with 30 TAC §37, Subchapter R. Continuous financial assurance coverage for post-closure care shall be provided until the facility is officially released in writing by the TCEQ from the post-closure care period in accordance with all requirements of the Part III8, Post-Closure Care Plan.

In accordance with 30 TAC §37.131, during the active life of the facility, the current cost estimate will be adjusted annually for inflation within 60 days prior to the anniversary of the establishment of the financial instrument(s) used. The evidence of any additional financial assurance will be provided to the TCEQ within 30 days after the anniversary date of the first establishment of the financial assurance mechanism.

The inflation adjustment may be made by recalculating the maximum cost of closure in current dollars, or by using an inflation factor derived from the most recent Implicit Price Deflator for Gross National Product published by the US Department of Commerce in the Survey of Current Business. The inflation factor is the result of dividing the latest published annual Deflator by the Deflator for the previous year. Multiplying the

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Submitted: July 2017

Revised: November 2017

Revised: January 2018

closure cost estimate by the inflation factor makes the first adjustment. The result is the adjusted closure cost estimate. Multiplying the latest adjusted closure cost estimate by the latest inflation factor makes subsequent adjustments. If the TCEQ approves a revised post-closure cost estimate prior to the annual inflation update, an additional update for inflation only is not required. The regular annual inflation update will resume the following year.

In accordance with 30 TAC §330.63(j), a copy of the financial assurance documentation for post closure care of the existing facility is included in Appendix III9C, Current Evidence of Financial Assurance.

**APPENDIX III9A
TCEQ CLOSURE COST ESTIMATE FORM**



Texas Commission on Environmental Quality

Closure Cost Estimate Form for Municipal Solid Waste Type I Landfills

This form is for use by applicants or site operators to provide cost estimates for closure of MSW Type I landfills to meet the requirements in 30 Texas Administrative Code (TAC) Chapter 330, Section 330.63(j) and 30 TAC Chapter 330 Subchapter L. The costs to be provided herein are cost estimates for hiring a third party to close the largest waste fill area that could potentially be open in the year to follow and those areas that have not received final cover. If you need assistance in completing this form, please contact the MSW Permits Section in the Waste Permits Division at (512) 239-2335.

Facility Name: Edinburg Regional Disposal Facility

MSW Permit No.: 956C

Site Operator/Permittee Name and Mailing Address: City of Edinburg

Total Closure Cost Estimate (2017 Dollar Amount): \$18,839,023

I. Professional Engineer's Statement, Seal, and Signature

I am a licensed professional engineer in the State of Texas. To the best of my knowledge, this Closure Cost Estimate has been completed in substantial conformance with the facility Closure Plan and, in my professional opinion, is in compliance with Title 30 of the Texas Administrative Code, Chapter 330.

Name: Chad E. Ireland Title: Senior Project Geological Engineer

Date: 1/11/18

Company Name: Golder Associates Inc. Firm Registration Number: F-2578

Professional Engineer's Seal



Chad E. Ireland

Professional Engineer's Signature

Closure Cost Estimate for MSW Type I Landfill

Facility Name: Edinburg Regional Disposal Facility

Permit No: MSW-956C

Revision No.: 0

Date: January 2018

II. Annual Review of Permit Conditions, Cost Estimates, Inflation Factor, and Financial Assurance

The permittee/site operator acknowledges that he/she will:

1. Review the facility's permit conditions on an annual basis and verify that the current active and inactive waste fill areas of the landfill match the areas on which closure cost estimates are based.
2. Request in writing via a permit modification application for an increase in the closure cost estimate and the amount of financial assurance provided if changes to the closure plan or the landfill conditions increase the maximum cost of closure at any time during the remaining active life of the landfill.
3. Request in writing via a permit modification application for a reduction in the cost estimate and the amount of financial assurance provided if the cost estimate exceeds the maximum cost of closure at any time during the remaining active life of the landfill. The permit modification application will include a description of the situation and a detailed justification for the reduction of the closure cost estimate and the amount of financial assurance.
4. Establish financial assurance for closure of the unit in an amount no less than the current closure cost estimate in accordance with 30 TAC Chapter 37, Subchapter R.
5. Adjust the current cost estimate for inflation within 60 days prior to the anniversary date of the first establishment of the financial assurance mechanism.
6. Provide annual inflation adjustments to the closure costs and financial assurance during the active life of the facility, until the facility is officially placed under the post closure care period and all requirements of the final closure plan have been approved in writing by the TCEQ executive director. The adjustment will be made using an inflation factor derived from the most recent annual Implicit Price Deflator for Gross National Product published by the United States Department of Commerce in its Survey of Current Business, as specified in paragraphs (1) and (2) of 30 TAC §37.131. The inflation factor is the result of dividing the latest published annual Deflator by the Deflator for the previous year.
7. Provide continuous financial assurance coverage for closure until the facility is officially placed under the post-closure care period.

Closure Cost Estimate for MSW Type I Landfill

Facility Name: Edinburg Regional Disposal Facility

Revision No.: 0

Permit No: MSW-956C

Date: January 2018

III. Description of the Closure Cost Estimates Worksheet

The following descriptions of the items on the closure cost estimates worksheet provide guidance for identifying the minimum work or cost elements and estimating the unit or lump sum cost of each item as applicable. Enter additional detail for each item in the field following the item as necessary and as site-specific condition warrants. The cost items are grouped under closure costs for engineering, construction, and storage and processing units. Include attachments to detail any additional work and associated costs necessary to close the site that is not already included as a line item on the worksheet. Reference the attachments and list the work or cost items in the fields under "Additional Engineering Cost Items Not Listed on the Worksheet," "Additional Construction Cost Items Not Listed on the Worksheet," or "Additional Storage and Processing Units Items Not Listed on the Worksheet" as applicable. Provide the total cost of the additional work or cost items in each cost category on the worksheet line that precedes the cost subtotal for each cost group.

1. Engineering Costs

The engineering tasks have been subdivided into seven items and are described below. Other related costs may be added as site-specific issues warrant.

1.1. Topographic Survey

A topographic survey will be required to verify the existing elevation and slopes of the landfill to ensure conformance with the final cover system, drainage system, and final grading designs.

Enter additional topographic survey work or cost element details as site-specific conditions warrant: NA

1.2. Boundary Survey

The metes and bounds description is required for filing of the affidavit of closure and deed recording of any area of the site which has received waste. Other activities to be included here are publication of the public notice of closing activities.

Enter additional boundary survey work or cost element details as site-specific conditions warrant: NA

1.3. Site Evaluation

The evaluation includes a site inspection to identify waste disposal areas, analyze drainage and erosion protection needs, and to determine other site operational features that are not in compliance with the permit. The site evaluation also includes verifying the need for new or relocation of existing groundwater monitoring wells and landfill gas monitoring probes, analysis of groundwater samples, and review of site operating record. The third party consultant who performed the site evaluation will prepare and submit an engineering report to the executive director to document the status of the

Closure Cost Estimate for MSW Type I Landfill

Facility Name: Edinburg Regional Disposal Facility

Revision No.: 0

Permit No: MSW-956C

Date: January 2018

site. The report will identify all areas of work and the associated implementation costs necessary to safely close the landfill operations with recommendations on how to fulfill these needs.

Enter additional site evaluation work or cost element details as site-specific conditions warrant: NA

1.4. Development of Plans

The final closure, plan the final cover system design and specifications, grading and drainage plans, specification for revegetation, design of any other improvements to bring the site into compliance with the permit, the closure schedule, and coordination with the TCEQ and provision of closure notice to the public.

Enter additional development of plans work or cost element details as site-specific conditions warrant: NA

1.5. Contract Administration (bidding and award)

The third-party consultant will advertise the project, receive the bids, evaluate the bids, award the closure construction contract and administer the contract during construction.

Enter additional contract administration work or cost element details as site-specific conditions warrant: NA

1.6. Closure Inspection and Testing

The professional of record will observe closure construction, perform cover thickness and permeability verification, and prepare an evaluation report upon completion of closure.

Enter additional closure inspection or testing work or cost element details as site-specific conditions warrant: NA

1.7. TPDES and other Permits

The third-party consultant will prepare plans, specifications, and other documents necessary for compliance with applicable federal and state laws and requirements, including the Clean Water Act, for the proper closure of the site.

Enter additional TPES or other permits work or cost element details as site-specific conditions warrant: NA

1.8. Additional Engineering Cost Items Not Listed on the Worksheet

List the Attachment(s) detailing any additional engineering cost items necessary to close the site that is not already included as a line item on the worksheet: NA Also, reference these Attachments in the "Units" column on this line of the worksheet. Provide the total cost of all additional engineering cost items in the "Cost" column.

Closure Cost Estimate for MSW Type I Landfill

Facility Name: Edinburg Regional Disposal Facility

Revision No.: 0

Permit No: MSW-956C

Date: January 2018

1.9. Engineering Costs Subtotal

1.9.1. Enter the sum of engineering costs in Items 1.1 through 1.8.

2. Construction Costs

Closure construction costs include those for construction of the final cover system, site grading, and drainage improvements. Other costs may be added as site-specific issues warrant.

2.1. Mobilization

2.1.1. Mobilization of Personnel and Equipment

The cost of mobilizing personnel and construction heavy equipment must be included as part of the construction costs.

Enter additional work or cost element details for mobilization of personnel and equipment as site-specific conditions warrant: NA

2.2. Final Cover System

The owner or operator must install a final cover system that is designed to minimize infiltration and erosion. The final cover system is subdivided into the sideslope cover and cap cover with their associated components to facilitate cost calculations. If an alternative final cover is proposed, the closure cost estimate will still be based on a design that utilizes the conventional composite cover system.

Enter additional final cover system work or cost element details as site-specific conditions warrant: NA

2.2.1. Side Slope Cover

Enter information for Items 2.2.1a through 2.2.1h.

2.2.2. Top Slope Cover

Enter information for Items 2.2.2a through 2.2.2h.

2.2.3. Cells for Class 1 Nonhazardous Industrial Waste

2.3. Site Grading

Site grading includes the final grading of the site, including the landfill cap and sideslopes.

Enter additional site grading work or cost element details as site-specific conditions warrant: NA

2.4. Site Fencing and Security

Site fencing and security must be included for the area which has received waste and have no existing approved fencing.

Closure Cost Estimate for MSW Type I Landfill

Facility Name: Edinburg Regional Disposal Facility

Revision No.: 0

Permit No: MSW-956C

Date: January 2018

Enter additional site fencing and security work or cost element details as site-specific conditions warrant: NA

2.5. Landfill Gas Monitoring and Control Systems

Enter information for Items 2.5.1 through 2.5.6.

Final installation of the landfill gas monitoring and control systems must include the installation costs of pipes and appurtenances. In the event of a forced closure, the systems may not have been completed, thus, the estimated costs to complete the landfill gas monitoring and control system must be provided.

Enter additional landfill gas monitoring and control systems work or cost element details as site-specific conditions warrant: NA

2.6. Groundwater Monitoring System

2.6.1. Monitor Well Installation

Upon closure of the site, it may be necessary to relocate the compliance boundary. This requires the installation of new monitor wells.

Enter additional groundwater monitoring system work or cost element details as site-specific conditions warrant: NA

2.6.2. Piezometer and Monitor Well Plugging and Abandonment

Piezometer or monitor well abandonment is the cost of abandoning (plugging) piezometers or monitor wells that are no longer needed. Determine the number of piezometers or monitor wells to be abandoned and include the total cost.

Enter additional plugging and abandonment work or cost element details as site-specific conditions warrant: NA

2.7. Leachate Management

2.7.1. Completion of Existing Leachate Collection System

In the event of a forced closure, there may be circumstances where the leachate collection system has not been completed. In this event, the leachate collection system must be closed with a permanent outfalls and permanent cleanouts installed.

Enter additional leachate management work or cost element details as site-specific conditions warrant: NA

Closure Cost Estimate for MSW Type I Landfill

Facility Name: Edinburg Regional Disposal Facility

Revision No.: 0

Permit No: MSW-956C

Date: January 2018

2.8. Stormwater Management

2.8.1. Stormwater Drainage Management System

To reduce the potential long-term impacts of the landfill on surface water quality, drainage features must be incorporated into the final cover design to direct runoff, minimize erosion, control sediments, and avoid ponding of stormwater. The drainage system construction costs must be included.

Enter additional stormwater drainage management work or cost element details as site-specific conditions warrant: NA

2.9. Additional Construction Cost Items Not Listed on Worksheet

List the Attachments detailing any additional construction cost items necessary to close the site that is not already included as a line item on the worksheet: NA Also, reference these Attachments in the "Units" column on this line of the worksheet. Provide the total cost of all additional construction cost items in the "Cost" column.

2.10. Construction Costs Subtotal

2.10.1. Enter the sum of construction costs in Items 2.1 through 2.9.

3. Storage and Processing Unit Closure Costs

For landfills that incorporate storage and/or processing operations that are not separately authorized, all waste and processed and unprocessed materials associated with storage and/or processing units must be removed during the closure process.

3.1. Waste Disposal

The cost of disposal of waste at an authorized facility. *Enter additional waste disposal work or cost element information as necessary.*

NA

3.2. Material Removal and Disinfection

The cost of removal, including transportation, of any remaining processed and unprocessed materials to an authorized off-site location. *Enter additional material removal and disinfection work or cost element information as necessary.*

NA

3.3. Demolition and Disposal

The cost of dismantling and/or disinfection of storage and/or processing units and disposal, as applicable. *Enter additional demolition and disposal work or cost element information as necessary.*

Closure Cost Estimate for MSW Type I Landfill

Facility Name: Edinburg Regional Disposal Facility

Permit No: MSW-956C

Revision No.: 0

Date: January 2018

NA

3.4. Additional Storage and Processing Unit Closure Cost Items Not Listed in Worksheet

List the Attachments detailing any additional storage and processing unit closure cost items necessary to close the site that is not already included as a line item on the worksheet. NA Also, reference these Attachments in the "Units" column on this line of the worksheet. Provide the total cost of all additional storage and processing unit closure cost items in the "Cost" column.

4. Sum of Cost Subtotals

4.1. Enter the sum of engineering, construction, and storage and processing unit closure cost subtotals from lines 1.9.1, 2.10.1, and 3.5.1.

5. Contingency

5.1. Add an amount equal to at least 10 percent of the sum of cost subtotals to cover unanticipated events during implementation of closure activities.

6. Contract Performance Bond

6.1. Add an amount equal to at least 2 percent of the sum of cost subtotals for purchase of a surety bond to guarantee satisfactory completion of the closure activities.

7. Third Party Administration and Project Management Costs

7.1. Add an amount equal to at least 2.5 percent of the sum of cost subtotals to cover the cost for a third party hired by TCEQ to administer the closure activities.

8. Total Closure Cost

8.1. Enter the sum of the amounts on lines 4.1, 5.1, 6.1, and 7.1.

Closure Cost Estimate for MSW Type I Landfill

Facility Name: Edinburg Regional Disposal Facility

Permit No: MSW-956C

Revision No.: 0

Date: January 2018

IV. Closure Cost Estimates Worksheet

A. Landfill Data

Total Permitted Waste Disposal Area: 406.0 acres

Largest Area Requiring Final Cover in the year to follow: 0 acres

Total Filled Area with Constructed Final Cover: 33 acres Pre-subtitle D Units 1-4

Total Area Certified Closed: 0 acres

Number of Monitor Wells to be Installed for Closure: 0

Number of Gas Probes to be Installed for Closure: 0

Total Acreage Needing LFG Collection and Control System: 159.1 acres

The unit or lump sum cost for each item is based on the work items and cost elements described in Section III of this Closure Cost Estimate document:

Yes No Partially

(if "No" or "Partially" is checked, please include attachments describing the additional work items and detailing the unit, quantities, and costs for the additional items)

B. Facility Drawings and Financial Assurance Documentation

- Facility drawings
 - Attach facility drawings showing the closure areas to which the closure cost estimates apply.
- Financial assurance documentation
 - For an existing facility, attach a copy of the documentation required to demonstrate financial assurance as specified in 30 TAC Chapter 37, Subchapter R.
 - For a new facility, a copy of the required documentation shall be submitted 60 days prior to the initial receipt of waste.

C. Attachments

- Additional Engineering, Construction, and Storage and Processing Units Cost Items Details

Closure Cost Estimate for MSW Type I Landfill

Facility Name: Edinburg Regional Disposal Facility

Permit No: MSW-956C

Revision No.: 0

Date: January 2018

D. Closure Cost Estimates Worksheet

If any item listed in this worksheet is not applicable to the subject facility, enter "NA" (Not Applicable) in the affected field.

Table 1. Closure Cost Estimates Worksheet.

Item No.	Item Description	Units ¹	Quantity	Unit Cost	Cost	Source of Unit Cost Estimate ²
1. Engineering Costs						
1.1	Topographic Survey	Lump Sum	1	\$20,000	\$20,000	Actual Cost
1.2	Boundary Survey	Lump Sum	1	\$15,000	\$15,000	Actual Cost
1.3	Site Evaluation	Acres	159.1	\$50	\$7,955	Experience
1.4	Development of Plans	Lump Sum	1	\$30,000	\$30,000	Experience
1.5	Contract Administration (bidding and award)	Lump Sum	1	\$10,000	\$10,000	Experience
1.6	Closure Inspection and Testing	Acres	159.1	\$10,000	\$1,591,000	Experience
1.7	TPDES and other Permits	Lump Sum	NA	NA	NA	Existing
1.8	Additional Engineering Cost Items (describe in attachments)	NA	NA	NA	NA	NA
1.9 Engineering Costs Subtotal						
1.9.1	Engineering Costs Subtotal	NA	NA	NA	\$1,673,955	NA
2. Construction Costs						
2.1 Mobilization						
2.1.1	Mobilization of Personnel and Equipment	Lump Sum	NA	NA	\$100,000	Experience
2.2 Final Cover System						
<i>2.2.1 Side Slope Cover</i>						
2.2.1a	Infiltration Layer – Compacted Clay	Cubic Yards	377,600	\$5.00	\$1,888,000	Experience
2.2.1b	Infiltration Layer – Geosynthetic Clay Liner	Square Feet	NA	NA	NA	None
2.2.1c	Flexible Membrane Cover – HDPE	Square Feet	NA	NA	NA	None

Closure Cost Estimate for MSW Type I Landfill

Facility Name: Edinburg Regional Disposal Facility

Permit No: MSW-956C

Revision No.: 0

Date: January 2018

Item No.	Item Description	Units ¹	Quantity	Unit Cost	Cost	Source of Unit Cost Estimate ²
2.2.1d	Flexible Membrane Cover – LLDPE	Square Feet	6,795,850	\$0.55	\$3,737,718	Current Industry Materail & Install
2.2.1e	Drainage Layer – Aggregate	Cubic Yards	NA	NA	NA	None
2.2.1f	Drainage Layer – Drainage Geocomposite Material	Square Feet	6,795,850	\$0.65	\$4,417,303	Current Industry Materail & Install
2.2.1g	Erosion Layer	Cubic Yards	503,400	\$3.50	\$1,761,887	Experience
2.2.1h	Vegetation	Acres	156.0	\$1,000	\$156,000	Experience
<i>2.2.2 Top Slope Cover</i>						
2.2.2a	Infiltration Layer – Compacted Clay	Cubic Yards	20,600	\$5.00	\$103,000	Experience
2.2.2b	Infiltration Layer – Geosynthetic Clay Liner	Square Feet	NA	NA	NA	None
2.2.2c	Flexible Membrane Cover – HDPE	Square Feet	NA	NA	NA	None
2.2.2d	Flexible Membrane Cover – LLDPE	Square Feet	369,300	\$0.55	\$203,115	Current Industry Materail & Install
2.2.2e	Drainage Layer – Aggregate	Cubic Yards	0	\$46.00	0	None
2.2.2f	Drainage Layer – Drainage Geocomposite Material	Square Feet	369,300	\$0.65	\$240,045	Current Industry Materail & Install
2.2.2g	Erosion Layer	Cubic Yards	27,400	\$3.50	\$95,900	Experience
2.2.2h	Vegetation	Acres	8.5	\$1,000	\$8,500	Experience
<i>2.2.3 Cells for Class 1 Nonhazardous Industrial Waste</i>						
2.2.3a	Dike Construction	Cubic Yards	0	\$5	\$0	None
2.3 Site Grading						
2.3.1	Site Grading	Acres	164.5	\$1,000	\$164,500	Experience

Closure Cost Estimate for MSW Type I Landfill

Facility Name: Edinburg Regional Disposal Facility

Revision No.: 0

Permit No: MSW-956C

Date: January 2018

Item No.	Item Description	Units ¹	Quantity	Unit Cost	Cost	Source of Unit Cost Estimate ²
2.4 Site Fencing and Security						
2.4.1	Site Fencing and Security	Lump Sum	0	\$10	\$0	Existing
2.5 Landfill Gas Monitoring and Control System						
2.5.1	Gas Control Wells	Acres	159.1	\$6,000	\$954,600	Experience
2.5.2	Gas Header Piping	Acres	159.1	\$2,000	\$318,200	Cost in 2.5.1
2.5.3	Gas Lateral Piping	Acres	159.1	\$1,600	\$254,560	Cost in 2.5.1
2.5.4	Flare Station	Lump Sum	0	\$0	\$0	Already Installed
2.5.5	Condensate Sumps	Acres	159.1	\$400	\$63,640	Cost in 2.5.1
2.5.6	Completion of LFG Monitoring System	NA	0	NA	0	Assume all installed
2.6 Groundwater Monitoring System						
2.6.1	Groundwater Monitoring Well Installation	Each	0	\$5,000	0	Assume all installed
2.6.2	Piezometer and Monitor Well Plugging and Abandonment	Each	0	\$1,000	0	Assume all done
2.7 Leachate Management						
2.7.1	Completion of Leachate Management System	NA	0	\$100,000	0	Experience
2.8 Stormwater Management						
2.8.1	Stormwater Drainage Management System	Acres	156.1	\$2,000	\$312,200	Experience
2.9 Other Cost Items						
2.9.1	Additional Construction Cost Items (describe in attachments)	NA	NA	NA	NA	NA
2.10 Construction Costs Subtotal						
2.10.1	Construction Costs Subtotal	NA	NA	NA	\$14,779,340	NA
3. Storage and Processing Unit Closure Costs						
3.1	Waste Disposal	<input checked="" type="checkbox"/> Tons <input type="checkbox"/> Cubic Yards	50	\$20	\$1000	Experience

Closure Cost Estimate for MSW Type I Landfill

Facility Name: Edinburg Regional Disposal Facility

Permit No: MSW-956C

Revision No.: 0

Date: January 2018

Item No.	Item Description	Units ¹	Quantity	Unit Cost	Cost	Source of Unit Cost Estimate ²
3.2	Material Removal and Disinfection	NA	NA	NA	NA	NA
3.3	Demolition and Disposal Units	LS	1	\$2,000	\$2,000	Experience
3.4	Additional Storage and Processing Unit Closure Cost Items (describe in attachments)	NA	NA	NA	NA	NA
3.5 Storage and Processing Unit Closure Costs Subtotal						
3.5.1	Storage and Processing Unit Closure Costs Subtotal	NA	NA	NA	\$3,000	NA
4. Sum of Engineering, Construction, and Storage and Processing Unit Closure Costs						
4.1	Sum of Engineering, Construction, and Storage and Processing Unit Closure Cost Subtotals	NA	NA	NA	\$16,456,295	NA
5. Contingency						
5.1	Contingency (10% of Sum of Engineering, Construction, and Storage and Processing Unit Closure Cost Subtotals)	NA	NA	NA	\$1,645,630	NA
6. Contract Performance Bond						
6.1	Contract Performance Bond (2% of Sum of Engineering, Construction, and Storage and Processing Unit Closure Cost Subtotals)	NA	NA	NA	\$329,126	NA
7. Third Party Administration and Project Management Costs						
7.1	Third Party Administration and Project Management Costs (2.5% of Sum of Engineering, Construction, and Storage and Processing Unit Closure Cost Subtotals)	NA	NA	NA	\$411,407	NA
8. Total Closure Costs						
8.1	Total Closure Costs (sum of amounts in Sections 4, 5, 6, and 7)	NA	NA	NA	\$18,842,458	NA

Closure Cost Estimate for MSW Type I Landfill

Facility Name: Edinburg Regional Disposal Facility

Permit No: MSW-956C

Revision No.: 0

Date: January 2018

¹ For items marked "specify," the responsible professional engineer will enter appropriate unit of measurement

² Sources of Unit Costs for Cost Estimates table may include:

- (1) Published Cost Estimator Manuals (e.g., RS Means);
- (2) Third Party Quotes (e.g., Environmental Field Services Contractors);
- (3) Verifiable Data based on Actual Operations; or
- (4) Other sources of cost acceptable to the executive director of the TCEQ.

**APPENDIX III9B
TCEQ POST-CLOSURE COST ESTIMATE FORM**



Texas Commission on Environmental Quality Post-Closure Care Cost Estimate Form for Municipal Solid Waste Type I Landfills

This form is for use by applicants or site operators to provide post-closure care cost estimates for post-closure care of MSW Type I landfills to meet the requirements in 30 Texas Administrative Code (TAC) Chapter 330, Section 330.63(j) and 30 TAC Chapter 330 Subchapter L. The costs to be provided herein are cost estimates for hiring a third party to conduct post-closure care of the largest waste fill area that has been certified closed in writing by the TCEQ executive director.

If you need assistance in completing this form, please contact the MSW Permits Section in the Waste Permits Division at (512) 239-2335.

I. General Information

Facility Name: Edinburg Regional Disposal Facility

MSW Permit No.: 956C

Date:

Revision Number: 0

Site Operator/Permittee Name and Mailing Address: City of Edinburg

Total Post-Closure Care Cost Estimate (2017 Dollar Amount): \$3,252.656

II. Professional Engineer's Statement, Seal, and Signature

I am a licensed professional engineer in the State of Texas. To the best of my knowledge, this Post- Closure Care Cost Estimate has been completed in substantial conformance with the facility Post-Closure Care Plan and, in my professional opinion, is in compliance with Title 30 of the Texas Administrative Code, Chapter 330.

Name: Chad E. Ireland Title: Senior Project Geological Engineer

Date: 1/11/2018

Company Name: Golder Associates Inc. Firm Registration Number: F-2578

Professional Engineer's Seal

Chad E. Ireland



Signature

Post-Closure Care Cost Estimate for MSW Type I Landfills

Facility Name: Edinburg Regional Disposal Facility

Permit No: 956C

Revision No.: _____

Date: January 2018

III. Annual Review of Permit Conditions, Cost Estimates, Adjustments for Inflation, and Financial Assurance

The site operator/permittee acknowledges that he/she will:

1. Revise and increase the post-closure care cost estimate and the amount of financial assurance provided whenever changes in the post-closure care plan or the landfill conditions increase the maximum cost of post-closure care at any time during the remaining active life of the landfill and until the facility is officially released from the post-closure care period in writing by the executive director.
2. Request a reduction in the post-closure care cost estimate and the amount of financial assurance as a permit modification whenever the post-closure care cost estimate exceeds the maximum cost of post-closure care remaining over the post-closure period. The permit modification will include a detailed justification for the reduction of the post-closure care cost estimate and the amount of financial assurance.
3. Establish financial assurance for post-closure care of the unit in an amount no less than the current post-closure care cost estimate in accordance with 30 TAC Chapter 37
4. Adjust the current post-closure care cost estimate for inflation within 60 days prior to the anniversary date of the first establishment of the financial assurance mechanism.
5. Provide annual inflation adjustments to the post-closure care costs and financial assurance during the active life of the facility and during the post closure care period. The adjustment will be made using an inflation factor derived from the most recent annual Implicit Price Deflator for Gross National Product published by the United States Department of Commerce in its Survey of Current Business, as specified in 30 TAC Chapter 37. The inflation factor is the result of dividing the latest published annual Deflator by the Deflator for the previous year.
6. Provide continuous financial assurance coverage for post-closure care until the facility is officially released in writing by the executive director from the post-closure care period in accordance with all requirements of the post-closure care plan.

Post-Closure Care Cost Estimate for MSW Type I Landfills

Facility Name: Edinburg Regional Disposal Facility

Revision No.: _____

Permit No: 956C

Date: January 2018

IV. Description of Worksheet Items of the Post-Closure Care Cost Estimates

The following descriptions of the worksheet items provide guidance for identifying the minimum work or cost elements for estimating the unit or lump sum cost of each item as applicable. Enter additional detail for each item in the field following the item as necessary and as site-specific conditions warrant. The cost items are grouped under post-closure care costs for engineering, construction, and leachate management. Include attachments to detail any additional work and associated costs necessary for the post-closure care of the unit or facility that is not already included as a line item on the worksheet. Reference the attachments and list the work or cost items in the fields under "Additional Engineering Cost Items Not Listed on the Worksheet," "Additional Construction Cost Items Not Listed on the Worksheet," or "Additional Leachate Management Costs Not Listed on the Worksheet" as applicable. Provide the total cost of additional work or cost items in each cost category on the worksheet line that precedes the cost subtotal for each cost group.

1. Engineering Costs

1.1 Site Inspection and Recordkeeping

Regularly scheduled and event-driven site inspection must be performed to identify areas experiencing settlement, subsidence, erosion, or other drainage related problems, and note the conditions of the environmental control and monitoring systems, including leachate collection, groundwater monitoring, and landfill gas monitoring systems. *Enter additional site inspection and recordkeeping work or cost element detail as site-specific conditions warrant.*

1.2 Correctional Plans and Specifications

The cost for an engineering consultant to prepare corrective measure construction plans and specifications to correct problems identified during site inspections. *Enter additional work or cost element details for correctional plans and specifications as site-specific conditions warrant.*

1.3 Site Monitoring

The cost of performing semiannual groundwater (including costs for sampling and analyzing parameters, and assessment and reporting) and quarterly landfill gas monitoring (including costs for sampling and reporting) and the monitoring of other site-specific systems at the landfill during the post-closure period. *Enter additional site monitoring work or cost element details as site-specific conditions warrant.*

1.4 Additional Engineering Cost Items Not Listed on the Worksheet

Post-Closure Care Cost Estimate for MSW Type I Landfills

Facility Name: Edinburg Regional Disposal Facility

Revision No.: _____

Permit No: 956C_____

Date: January 2018

List the Attachments detailing additional post-closure care engineering cost items not already included as a line item on the worksheet. (Also, reference these Attachments in the "Units" column of this line of the worksheet. Provide the total cost of all additional engineering cost items in the "Cost" column).

Post-Closure Care Cost Estimate for MSW Type I Landfills

Facility Name: Edinburg Regional Disposal Facility

Permit No: 956C

Revision No.: _____

Date: January 2018

7. Construction Costs

2.1 Cap and Sideslopes Repairs and Revegetation

The cost of repair of the cap and cap drainage control structures due to erosion or structural integrity failures and maintaining final cover vegetation to minimize erosion. *Enter additional cap and sideslopes repair and revegetation work or cost element details as site-specific conditions warrant.*

2.2 Mowing and Vegetation Control

The cost of controlling vegetation growth on the final cover and other areas of the landfill. *Enter additional mowing and vegetation control work or cost element details as site-specific conditions warrant.*

2.3 Groundwater Monitoring System Maintenance

The cost of repairs/replacement and routine maintenance. *Enter additional groundwater monitoring system maintenance work or cost element details as site-specific conditions warrant.*

2.4 LFG Monitoring Probes Maintenance

The cost of repairs/replacement and routine maintenance. Enter additional LFG monitoring probes maintenance work or cost element details as site-specific conditions warrant.

2.5 LFG Collection System Maintenance

The cost of repairs and routine maintenance. *Enter additional LFG collection system maintenance work or cost element details as site-specific conditions warrant.*

2.6 Perimeter Fence and Gates Maintenance

The cost of maintaining perimeter fence and gates to restrict unauthorized access to the closed landfill. *Enter additional perimeter fence and gates maintenance work or cost element details as site-specific conditions warrant.*

2.7 Access and Rights of Way Maintenance

Post-Closure Care Cost Estimate for MSW Type I Landfills

Facility Name: Edinburg Regional Disposal Facility

Revision No.: _____

Permit No: 956C_____

Date: January 2018

The cost of maintaining the access roads and other rights of way to the closed landfill to conduct inspections, environmental sampling, routing maintenance and other post-closure activities. *Enter additional access and rights of way maintenance work or cost element details as site-specific conditions warrant.*

2.8 Drainage System Cleanout and Repairs

The cost to include costs for maintaining and repairing ditches, conveyance structures, and ponds/basins. *Enter additional drainage system cleanout and repairs work or cost element details as site-specific conditions warrant.*

2.9 Additional Construction and Maintenance Cost Items Not Listed on the Worksheet

List the Attachments detailing any additional construction and maintenance cost items necessary for post-closure care that are not already covered on the worksheet. (Also, reference these Attachments in the "Units" column on this line of the worksheet. Provide the total cost of all additional construction and maintenance cost items in the "Cost" column.)

8. Leachate Management Costs

3.1 Leachate Collection and Removal System Operation and Maintenance

1. The cost of operation, routine maintenance and repairs. *Enter additional work or cost element details for leachate collection and removal system operation and maintenance as site-specific conditions warrant.*

2.

3.2 Leachate Disposal

3. The cost of leachate disposal off-site. *Enter additional work or cost element details for leachate disposal as site-specific conditions warrant.*

4.

3.3 Additional leachate management cost items not listed on the worksheet. *List the Attachments detailing any additional leachate management cost items necessary for post-closure care that are not already covered on the worksheet. (Also, reference these Attachments in the "Units" column on this line of the worksheet. Provide the total cost of all additional leachate management cost items in the "Cost" column.)*

5.

Post-Closure Care Cost Estimate for MSW Type I Landfills

Facility Name: Edinburg Regional Disposal Facility

Revision No.: _____

Permit No: 956C_____

Date: January 2018

9. Sum of Cost Subtotals

6. Enter the sum of engineering, construction, and storage and leachate management post-closure care cost subtotals from lines 1.5.1, 2.10.1, and 3.5.1.

10. Contingency

The cost added to cover unanticipated events during implementation of post-closure activities. (Enter additional work or cost element information as necessary)

11. Third Party Administration and Project Management Costs

The cost for the third party hired by TCEQ to administer the post-closure activities. (Enter additional work or cost element information as necessary)

V. Post-Closure Care Cost Estimates Worksheet

Post-Closure Care Period – 30 years

Total Permitted Acreage: _____ acres

Total Permitted Waste Footprint: _____ acres

Number of Groundwater Monitoring Wells: _____

Number of GW Monitoring Events: _____ /year

Number of Gas Probes: _____

Number of LFG Monitoring Events: _____ /year

The unit or lump sum cost for each item is based on the work items and cost elements described in Section III of this Post-Closure Cost Estimate document:

Yes No Partially

If "No" or "Partially" is checked, please attach a written description of work items and cost elements which form the bases of unit or lump sum cost for the affected items.

(NOTE: If any item listed in this worksheet is not applicable to the subject facility, enter Not Applicable (N/A) in the affected fields)

Attachments

Additional Engineering, Construction, and Leachate Management Cost Items Details.

Post-Closure Care Cost Estimate for MSW Type I Landfills

Facility Name: Edinburg Regional Disposal Facility

Permit No: 956C

Revision No.: _____

Date: January 2018

Table 1: Post-Closure Care Cost Estimates

Item No.	Item Description	Units	Annual Qty.	Unit Cost	Annual Cost	Source of Unit Cost Estimateⁱ
1.0 Engineering Costs						
1.1	Site Inspection and Recordkeeping ⁱⁱ	Each	1	\$2,500	\$2,500	Based on experience with similar project
1.2	Correctional Plans and Specifications	Each	(1/5yr)	\$6,000	\$1,000	Based on experience with similar project
1.3 Site Monitoring						
<i>1.3.1 Groundwater Monitoring System</i>						
1.3.1(a)	Sampling and Analysis of GW Monitoring Wells (Quantity = 2 x Number of wells)	Wells	76	\$500	\$38,000	Based on experience with similar project
1.3.1(b)	Piezometers/Well Abandonment	Each	0	–	–	Based on experience with similar project
<i>1.3.2 LFG Monitoring System</i>						
1.3.2(a)	LFG Quarterly Monitoring (Quarterly)	Each	4	\$4,000	\$16,000	Based on experience with similar project
1.3.2(b)	LFG Probe Plugging and Abandonment	Each	0	–	–	Based on experience with similar project

Post-Closure Care Cost Estimate for MSW Type I Landfills

Facility Name: Edinburg Regional Disposal Facility

Revision No.: _____

Permit No: 956C

Date: January 2018

Item No.	Item Description	Units	Annual Qty.	Unit Cost	Annual Cost	Source of Unit Cost Estimate ⁱ
1.4 Additional Engineering Cost Items (Detail in Attachments)						
1.4.1	Additional Engineering Cost Items (describe in attachments)	NA	NA	NA	NA	NA
1.5 Engineering Costs Subtotal						
1.5.1	Engineering Costs Subtotal	NA	NA	NA	\$57,500	NA
2.0 Construction and Maintenance Costs						
2.1	Cap and Sideslopes Repairs and Revegetation	Acres	3.3	\$2,000	\$6,600	Based on experience with similar project
2.2	Mowing and Vegetation Management	Acres	224.5	\$20	\$4,490	Based on experience with similar project
2.3	Groundwater Monitoring System Maintenance	Each	0.20	\$5,000	\$1,000	Based on experience with similar project
2.4	LFG Monitoring Probes Maintenance	Each	0.20	\$5,000	\$1,000	Based on experience with similar project
2.5	LFG Collection System Maintenance	Acres	159.1	\$100	\$15,910	Based on experience with similar project

Post-Closure Care Cost Estimate for MSW Type I Landfills

Facility Name: Edinburg Regional Disposal Facility

Revision No.: _____

Permit No: 956C

Date: January 2018

Item No.	Item Description	Units	Annual Qty.	Unit Cost	Annual Cost	Source of Unit Cost Estimate ⁱ
2.6	Perimeter Fence and Gates Maintenance	Each	1	\$1,000	\$1,000	Based on experience with similar project
2.7	Access Roads Maintenance	Each	1	\$5,225	\$5,225	Based on experience with similar project
2.8	Drainage System Cleanout/Repairs	Each	1	\$2,650	\$2,650	Based on experience with similar project
2.9 Additional Construction and Maintenance Cost Items (Details in Attachments)						
2.9.1	Additional Construction and Maintenance Cost Items (details in attachments)	NA	NA	NA	NA	NA
2.10 Construction and Maintenance Costs Subtotal						
2.10.1	Construction and Maintenance Costs Subtotal	NA	NA	NA	\$37,875	NA
3.0 Leachate Management						
3.1	Leachate Management System Operation and Maintenance	Each	1	\$1,000	\$1,000	Based on experience with similar project
3.2	Leachate Disposal	Gals	24,300	\$0.127	\$3,086	Actual Cost
3.3 Additional Leachate Management Cost Items (Details in Attachments)						
3.4	Additional Leachate Management Cost Items (details in attachments)	NA	NA	NA	NA	NA

Post-Closure Care Cost Estimate for MSW Type I Landfills

Facility Name: Edinburg Regional Disposal Facility

Revision No.: _____

Permit No: 956C

Date: January 2018

Item No.	Item Description	Units	Annual Qty.	Unit Cost	Annual Cost	Source of Unit Cost Estimate ⁱ
3.5 Leachate Management Costs Subtotal						
3.5.1	Leachate Management Costs Subtotal	NA	NA	NA	\$4,086	NA
4.0 Sum of Engineering, Construction, and Leachate Management Costs						
4.1	Sum of Engineering, Construction, and Leachate Management Cost Subtotals	NA	NA	NA	\$99,461	NA
5.0 Contingency						
5.1	Contingency (10% of Sum of Engineering, Construction, and Leachate Management Cost Subtotals)	NA	NA	NA	\$9,946	NA
6.0 Third Party Administration and Project Management Costs						
6.1	Third Party Administration and Project Management Costs (2.5% of Sum of Engineering, Construction, and Leachate Management Cost Subtotals)	NA	NA	NA	\$2,487	NA
7. Total Post-Closure Cost						
7.1	Total Annual Post-Closure Cost (Sum of amounts in Sections 4, 5, and 6)	NA	NA	NA	\$111,894	NA
7.2	30 Year Post-Closure Costs (Total Annual Post-Closure Cost x 30)	NA	NA	NA	\$3,356,812	NA

ⁱ Sources of Unit Cost Estimates may include:

- (1) Published Cost Estimator Manuals (e.g., RS Means);
- (2) Third Party Quotes (e.g., Environmental Field Services Contractors); or
- (3) Verifiable Data based on Actual Operations

Post-Closure Care Cost Estimate for MSW Type I Landfills

Facility Name: Edinburg Regional Disposal Facility

Permit No: 956C

Revision No.: _____

Date: January 2018

ⁱⁱ Example Description for Item No. 1.1 – “Includes costs for site inspection performed at least annually for identification of areas experiencing settlement or subsidence, erosion or other drainage-related problems, inspection of the leachate collection system, gas monitoring system and LFG monitoring system.”