

# INSTRUCTIONS FOR TIRE MONOFILL CLOSURE COST ESTIMATE WORKSHEET WITH KDHE/BWM PROVIDED UNIT COSTS

This guidance has been prepared to simplify the Permittees' task of preparing closure cost estimate documentation in an accurate and timely manner. Following this guidance will help to lessen KDHE's time to review and approve the estimate. The Permittee or his/her design consultant is to use approved Design Drawings and Record Drawings from past construction quality assurance (CQA) events as a basis to prepare the facility's closure cost estimate. These instructions are applicable only to Tire Monofills.

- I. Make sure that you have an updated Facility Site Map and an Area, Capacity, and History TABLE(s).
- II. Download the proper Closure Cost Estimate Forms from the KDHE-BWM website at [http://www.kdheks.gov/waste/forms\\_swclosurecosts.html](http://www.kdheks.gov/waste/forms_swclosurecosts.html). Make sure you use the form for the correct fiscal year and facility type. The Kansas state fiscal year begins on July 1<sup>st</sup>, and ends on June 30<sup>th</sup>.
- III. Complete a Closure Cost Estimate Form for each type of Landfill for which you are permitted. For example, if you have a facility that has waste disposal areas permitted for municipal solid waste (MSW), construction and demolition waste (C&D), waste tires, and industrial waste (IDL), you would need to complete a separate Closure Cost Estimate Form for **each** of those landfill types.
- IV. The unit costs on the Closure Cost Estimate Forms have been updated for inflation.
- V. Obtain the following Permit Documents:
  - a. **Approved Design Drawings**
    - i. Plat or Certificate of Survey
    - ii. Make a **copy** of the Facility Site Map and illustrate all of the permitted waste disposal areas for the given type of landfill.
      1. Determine the areas of the landfill that are:
        - a. Closed. Areas that closed after 2001 must have an approved CQA report and official documentation from KDHE-BWM to be classified as being officially closed.
        - b. Open, and have intermediate cover over them.
        - c. Open, and are within the "Active Area" of the landfill.
        - d. Open, that have received final cover, but have not been certified closed by KDHE.
      2. A copy of the Area, Capacity, and History Table must be submitted for all facilities. A facility site map with the open, closed, and intermediate cover areas and acreages labeled is required to be submitted for all Subtitle D facilities. It is not required for SALs, C&Ds, industrial landfills, and waste tire monofills, but it is encouraged, as it will expedite the KDHE review process. These are living documents that must be continuously updated.
  - b. **Approved CQA Reports**
    - i. A copy of the As-Built or Record Drawings from CQA Reports can also be used to illustrate how much a waste disposal area or cell has been filled.
- VI. From your copy of the Facility Site Map, fill out all of the information at the top of the sheet.
  - a. OWNER: \_\_\_\_\_ State the name of the Permittee.
  - b. OPERATOR: \_\_\_\_\_ This is usually the same as the Permittee.
  - c. TOTAL CQA'D WASTE DISPOSAL: \_\_\_\_\_ ACRES. This is the total amount of permitted waste disposal area that has been approved for disposal by KDHE using the Construction Quality Assurance (CQA) process.
  - d. TOTAL PERMITTED WASTE AREA CERTIFIED CLOSED: \_\_\_\_\_ This is the area that has received final cover, and if closed after 2001, was documented closed in a CQA report approved by KDHE to certify closure.
  - e. WAS A FACILITY SITE MAP SUBMITTED WITH THIS CLOSURE COST ESTIMATE? \_\_\_\_: State whether a facility site map was submitted or not.
  - f. LARGEST AREA REQUIRING FINAL COVER DURING THE RENEWAL PERIOD: \_\_\_\_\_ All areas that have or will receive waste during the renewal period, but have not received final cover. This includes active areas, and areas under daily or intermediate cover.
  - g. DATE: \_\_\_\_\_
  - h. PERMIT NUMBER: \_\_\_\_\_
  - i. ESTIMATOR: \_\_\_\_\_ State your name, position, and the facility or company you represent.

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- j. FACILITY PERMITTED AREA: \_\_\_\_ This acreage is illustrated and stated on the sealed Plat or Certificate of Survey approved by KDHE-BWM.
  - k. ACRES CURRENTLY OPEN: \_\_\_\_\_ This is the area that is open at the time that the estimate is prepared. It includes all active areas, areas under intermediate cover, as well as areas that have received final cover, but have not been certified closed by KDHE via the CQA process.
  - l. IS THERE AN APPROVED ALTERNATIVE FINAL COVER (Y/N): \_\_\_\_ State yes or no.
  - m. FINAL COVER SOIL DEPTH: \_\_\_\_ This is the depth of soil required to construct final cover. This value is 2 ft. unless there is an approved alternative final cover.
  - n. Contact your KDHE-BWM Permit Manager if you have any questions.
- VII. Complete all of the Line Items in the Closure Cost Estimate Worksheet. If some of the Line Items are not applicable to your facility, state NA (Not Applicable) in the far-right column. An explanation of each specific line item can be found in the "Closure Line Items" section. If KDHE's unit costs are used, write "KDHE unit cost" in the right-hand column. If you use a different unit cost, provide your source in the right-hand column.
- a. Provide a separate sheet attached to show your calculations and include the units. Perform all calculations in the units that are listed on the closure cost estimate.
    - i. For example, if the area open is 5 acres and you are wanting to compute the volume of vegetative soil in cubic yards,
 
$$5.0 \text{ acres} \times 43,560\text{ft}^2/\text{acre} \times 1.0 \text{ ft} \times 1\text{yd}^3/27\text{ft}^3 = \text{_____} \text{ cubic yards.}$$
    - b. Standard final cover consists of 24 inches of vegetative soil with Type B compaction. If you have an approved alternate final cover, state the depth of the low permeability and protective/vegetative soil in the right-hand column.
- VIII. Print, sign, and date at the bottom of the page.

**NOTES:**

The Bureau analyzed data from the July 1, 2013 – June 30, 2014 permit renewal period and developed unit cost factors for closure and post-closure care for landfills by landfill type.

**CLOSURE LINE ITEMS:**

**1.0.0 Preparing Site for Construction of Final Cover**

- 1.0.1 Backfill below grade areas with structural backfill: Cost includes the purchase of backfill material, the hauling of backfill material, the spreading of backfill material, the addition of water and compaction of the backfill.
- 1.0.2 Other: Provide design and itemize: Cost includes items in the provided design.

**1.0.3 Preparing Site for Construction of Final Cover Subtotal:** Total of 1.0.1 and 1.0.2.

**2.0.0 FINAL COVER**

**2.0.1 Twenty-Four Inch (24") Soil Layer**

- 2.0.2 Complete soil contouring and grading for final cover: Costs include grading the site to final elevations prior to placement of low permeability soil layer.
- 2.0.3 Minimum 24" soil, type B compaction (see KDOT specs): Cost includes purchasing (if on-site soil is not available) and hauling soil to the landfill and spreading of soil on top of the low permeability layer or drainage layer to a depth capable of protecting the low permeability from desiccation due to freeze-thaw. This layer should be capable of supporting vegetation. Quantity must match earthwork balance

- 2.0.4 Seeding and mulching: Cost includes the purchase and

application of grass seed and of 1" of straw mulch.  
**2.0.5 Soil Layer Subtotal:** Total of 2.0.2, 2.0.3 and 2.0.4.

**3.0.0 EROSION CONTROL**

- 3.0.1 Terraces and letdowns: Cost includes the construction of soil terraces and letdowns to control erosion.
- 3.0.2 Checkdams and filters: Cost includes the construction of checkdams and filters to control erosion.
- 3.0.3 Grass ditching/channels: Cost includes the construction of grass-lined ditches to provide drainage from the top of the landfill.
- 3.0.4 Riprap ditching/channels: Cost includes the construction of riprap-lined ditches to provide drainage from the top of the landfill. Riprap should be used where flow velocities are in excess of 5 feet/sec.

**3.0.5 Erosion Control Subtotal:** Total of 3.0.1, 3.0.2, 3.0.4 and 3.0.4.

**4.0.0 OPERATIONS AND INVENTORY REMOVAL**

- 4.0.1 Excess solid waste: Cost includes the removal, hauling and disposal of excess solid waste.
- 4.0.2 Mobile equipment/machinery (e.g., containers, tanks, etc.): Cost includes the removal, hauling and disposal of mobile equipment/machinery.
- 4.0.3 Contaminated soils: Cost includes the removal, hauling and disposal of contaminated soils.

**4.0.4 Operations and Inventory Removal Subtotal:** Total of 4.0.1, 4.0.2, and 4.0.3.

**5.0.0 DEMOLITION/REMOVAL OF SITE IMPROVEMENTS**

- 5.0.1 Office/shop/maintenance and other ancillary buildings: Cost includes the removal of buildings and structures.

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- 5.0.2 Equipment to be decommissioned: Cost includes removal of weigh scales, bulking/solidification pits, collection pits/sumps, piping, etc.
- 5.0.3 Site Utilities: Cost includes the disconnecting and demolition of the utilities coming onto the site.
- 5.0.4 Demolition/Removal of Site Improvements Subtotal:** Total of 5.0.1, 5.0.2, and 5.0.3.
- 6.0.0 REPLACE/REBUILD SITE ACCESS CONTROLS**
- 6.0.1 Fencing: Cost includes the purchase and installation of fence.
- 6.0.2 Gates: Cost includes the purchase and installation of Gates.
- 6.0.3 Access barriers: Cost includes the purchase and installation of access barriers.
- 6.0.4 Other security equipment: Cost includes the purchase and installation of other security equipment.
- 6.0.5 Replace/Rebuild Site Access Controls subtotal:** Total of 6.0.1, 6.0.2, 6.0.3, and 6.0.4.
- 7.0.0 BORROW AREA RECLAMATION**
- 7.0.1 Grading and site preparation: Costs include grading the borrow area to final elevations prior to placement of backfill.
- 7.0.2 Soil, On-site: Cost includes the loading of on-site soil and spreading of soil on top of the low permeability layer or drainage layer to a depth capable of protecting the low permeability layer from desiccation due to freeze-thaw. This layer should be capable of supporting vegetation. Quantity must match earthwork balance.
- 7.0.3 Soil, Off-site: Cost includes purchasing and hauling soil to the landfill and spreading of soil on top of the low permeability layer or drainage layer to a depth capable of protecting the low permeability from desiccation due to freeze-thaw. This layer should be capable of supporting vegetation. Quantity must match earthwork balance. *Do not include this item if soil is available on-site.*
- 7.0.4 Seeding and mulching: Cost includes the purchase and application of grass seed and of 1" of straw mulch for the borrow area.
- 7.0.5 Fertilizer: Cost includes the purchase and application of appropriate, grass fertilizer.
- 7.0.6 Borrow Area Reclamation Subtotal:** Total of 7.0.1, 7.0.2, 7.0.3, 7.0.4, and 7.0.5.
- 8.0.0 Closure Cost Subtotal**
- 9.0.0 PROFESSIONAL SERVICES [Closure cost subtotal (8.0.0) X 10% or enter costs provided by third party with sources listed in line items below]**
- 9.0.1 Professional Services (10% of Closure Cost Subtotal): Cost = 10% of the Closure Cost Subtotal.
- 9.0.2 Topographic and Boundary Survey: Cost includes development final closure survey and establishment of the final waste boundaries.
- 9.0.3 Engineering (Design, Bid Documents, Procurement, Construction Contract Management): Cost includes development of the bid documents for project letting from existing closure plans.
- 9.0.4 Engineering Services (Construction Oversight, Testing, Reporting, Certification): Cost includes all construction quality assurance inspections and testing required to properly close the landfill and preparation of the Certification of Closure report.
- 9.0.5 Professional Services Subtotal:** Total of 9.0.1, 9.0.2, 9.0.3 and 9.0.4.
- 10.0.0 ADMINISTRATION AND CONTINGENCY**
- 10.0.1 Administration Services (Closure Cost Subtotal [8.0.0] X 5%): Cost includes third party administration fee of 10% of the Closure Cost Subtotal.
- 10.0.2 Contingency (Closure Cost Subtotal [8.0.0] X 10%): Cost includes a contingency of 10% of the Closure Cost Subtotal.
- 10.0.3 Administration and Contingency Subtotal:** Total of 10.0.1, and 10.0.2.