Texas Commission on Environmental Quality

Instructions for Form TCEQ-20720
Closure Plan for Municipal Solid Waste Type I
Landfill Units and Final Facility Closure

Form Availability

This form, as well as other municipal solid waste (MSW) documents and rules are available on the TCEQ Internet site at http://www.tceq.texas.gov/search\_forms.html. The number for this form is 20720. For further instructions regarding completion of this form, send an e-mail to mswper@tceq.texas.gov or call 512-239-2335.

Definitions

MSW Landfill Unit. As defined under 30 TAC §330.3(90), an MSW landfill unit is a discrete area of land or an excavation that receives household waste and that is not a land application unit, surface impoundment, injection well, or waste pile, as those terms are defined under 40 Code of Federal Regulations §257.2. An MSW landfill unit also may receive other types of Resource Conservation and Recovery Act Subtitle D wastes, such as commercial solid waste, nonhazardous sludge, conditionally exempt small-quantity generator waste, and industrial solid waste. Such a landfill may be publicly or privately owned. An MSW landfill unit may be a new MSW landfill unit, an existing MSW landfill unit, a vertical expansion, or a lateral expansion.

Partial Closure. Partial closure refers to closure of one or more landfill units within a permit boundary in which other landfill units remain active. Partial closure applies to a facility that has more than one landfill unit within its permit boundary.

Final Facility Closure. Final facility closure refers to closure of all the landfill units or closure of the last or the only landfill unit, including closure of all the associated storage or processing units or operations, at a facility.

# General Information

Facility Name. Enter the name by which you want the facility to be known or, for existing facilities, the name that it is known by. It will be used by all TCEQ programs when referring to the facility (Regulated Entity). Make sure this name is consistent on all forms submitted to TCEQ.

MSW Permit Number. Enter the facility’s permit number, if known. For a permit amendment application, enter the proposed permit amendment number.

Site Operator/Permittee Name. Enter the complete legal name of the entity that owns or will own the permit.

# Landfill and Other Waste Management Units and Operations Requiring Closure at the Facility

## Facility Units

1. Description of Landfill Units.

Enter information to identify and describe each of the landfill units at the Facility as follows:

Name or Descriptor of Unit: Enter the name by which you want each landfill unit to be known or the name that it is known by, e.g., North Hill Unit, South Hill Unit, etc.

Operating Status of Unit: Enter the appropriate operating status of the landfill unit. A unit’s operating status may be active, inactive, closed, in post-closure care, etc. Landfill units that have final cover installed, but have not been officially closed as required by rule are considered inactive. Applications for “greenfield” sites will enter “construction to commence following issuance of permit”.

Type of Liner System under Unit: Enter the type of liner constructed or proposed for each landfill unit, e.g., composite liner, alternative liner, in-situ clay liner, etc.

Note about Correlation of the Liner and Final Cover Permeabilities: For a landfill unit with a composite liner system at the bottom, the final cover synthetic membrane component must have a permeability less than or equal to the permeability of the bottom liner system. For a landfill unit with no synthetic bottom liner, the clay-rich soil cover layer shall consist of a minimum of 18 inches of earthen material; this cover layer will have a coefficient of permeability equal to the permeability of any constructed bottom liner, or natural subsoil present, and shall in no case exceed 1 x 10-5 cm/sec.

The liner and final cover systems for landfill units with conventional prescriptive or composite liner and final cover systems should be correlated to assure that the final cover synthetic membrane component has or will have a permeability less than or equal to the permeability of the bottom liner system as required; demonstrate, for landfill units with no synthetic bottom liner, that the clay-rich soil cover layer consists of a minimum of 18 inches of earthen material with a coefficient of permeability less than or equal to the permeability of the constructed bottom liner or natural subsoil present; and that the coefficient of permeability of the compacted clay-rich layer component of the final cover will in no case exceed 1 x 10-5 cm/sec. for the landfill units. If a unit incorporates more than 1 type of liner system (e.g. unit that includes MSW and Class 1 cells), please indicate so and provide details.

Units Containing Class 1 Cells, Above Grade, Below Grade, and Other: Landfill units containing Class 1 industrial solid waste placed above grade should be enclosed on all sides by properly designed containment dikes approved by the TCEQ executive director. Landfill units containing Class 1 industrial solid waste with MSW placed above the Class 1 waste would require a four-foot layer of compacted clay-rich soil over the Class 1 waste before placement of the MSW. The final cover placed over a Class 1 industrial solid waste must consist of a minimum of 18 inches of uncontaminated topsoil overlying four feet of compacted clay-rich soil material with a coefficient of permeability no greater than 1 x 10-7 cm/sec. The final cover over aerial fill must include a flexible membrane component.

Size of Unit’s Waste Footprint: Enter the area (acres) occupied or to be occupied by waste within the unit.

Maximum Inventory of Waste Ever in Unit: Enter the largest quantity (tonnage or cubic yards) of waste held or to be held in each unit. This will be the design maximum waste capacity of the unit.

Totals of Waste Footprints, and Maximum Inventories of Waste for all Landfill Units: Enter the sum of the values in the “size of unit’s waste footprint” column and in the “maximum inventory of waste ever on site” column.

1. Description of Waste Storage or Processing Units or Operations Associated with this Permit.

Enter information as follows to identify and describe each of the storage or processing units or operations that are located or proposed to be located within the facility and authorized or proposed to be authorized as part of this permit:

Type of Storage or Processing Unit or Operation: The storage or processing unit or operation type may be mulching, composting, liquid solidification, leachate storage tanks, etc.

Operational Status of Storage or Processing Unit or Operation: Enter the appropriate operating status of the storage or processing unit or operation. A unit’s operating status may be proposed, active, inactive, or closed.

Size of the Area Used for the Storage or Processing Unit or Operation: Enter the area in acres occupied or to be occupied by waste, bulking or processed materials, etc., within the unit.

Maximum Inventory of Waste Ever in Storage or Processing Unit or Operation: Enter the largest quantity (weight in tons, or volume in cubic yards) of waste held or to be held in each unit. This will be the design maximum capacity of the unit.

Other Information: Enter any other information relevant or specific to the storage or processing unit or operation.

## Waste Inventory Summary

1. Maximum Inventory of Wastes Ever On Site.

Enter the maximum inventory of waste for all landfill units from Table 1 on the first row, and the maximum inventory of waste ever in storage or processing unit or operation from Table 2 on the second row, and provide the total maximum inventory of wastes ever on site ever on site on the third row.

## Drawings Showing Details of the Waste Management Units at Closure

1. Location of the Drawings showing Details of the Waste Management Units at Closure (outlines, dimensions, maximum elevations of waste and final cover of landfill units, and waste storage or processing units or operations at closure of the facility).

Location of Drawings or Maps showing Details of the Waste Management Units at Closure: Enter information that identify and describe the Site Development Plan drawings that show details of the landfill and storage or processing units or operations at the facility. The site operator should provide new drawings to show units that are not available in existing SDP drawings or maps.

# Description of the Final Cover System Design

## Types and Descriptions of the Final Cover Systems

1. Table 1. Types and Descriptions of the Final Cover Systems Permitted or Proposed for Closure of the Landfill Units.

Type of Final Cover System: Enter information that describe the type of final cover proposed or existing, and that functions to minimize infiltration and erosion, over each landfill unit. The type of final cover existing or proposed over a landfill unit may be:

* A conventional composite final cover;
* An alternative composite final cover;
* A water balance alternative final cover;
* A pre-Subtitle D prescriptive final cover; etc.

Final Cover System Components Description: Enter and describe the components of the final cover system for each landfill unit to demonstrate design compliance with 30 TAC Section 330.457(a) and (b), and (d). Information provided should include the:

(a) Final cover layers (e.g., for conventional composite final cover, the layers will include (top to bottom) – the erosion layer (including the earthen material capable of sustaining native plant growth that forms the topmost layer of the final cover), drainage layer, geomembrane and compacted clay layers, etc.);

(b) Materials used or proposed for the cover layers: (e.g., elephant grass; loamy soil erosion layer; (CH, CL, etc.)-compacted clay-rich soil; (HDPE, LLDPE, textured, smooth)-geomembrane; geocomposite consisting of (bi- or tri-planar HDPE) geonet with (heat-bonded or manually tied double-sided or single-sided-woven, nonwoven, needle punched) geotextile; drainage aggregate);

(c) Installed minimum thickness of each cover layer; and

(d) Hydraulic conductivity value of each cover layer.

Details of the materials and construction specifications will be provided in the Final Cover Quality Control Plan.

Other Information: Enter other information as applicable to the specific final cover or site.

## Design Details

1. Table 2. Design Details of the Final Cover Top and Side Slopes for Landfill Units.

Enter information that describes the final cover system design features and incorporated structures that provide low maintenance, erosional and geotechnical stability, ponding prevention, drainage control, etc., during the closure and post-closure care periods. The design features and structures information include:

Maximum Final Elevation of Waste: Enter the elevation (in feet above mean sea level) of the topmost point of the disposed waste for each landfill unit.

Maximum Elevation of Top of Final Cover: Enter the elevation (in feet above mean sea level) of the topmost point of the final cover for each landfill unit.

Minimum Grade of the Final Cover Top Slope for Each Landfill Unit: Enter the minimum design grade of the final cover top slope. The minimum design grade of the final cover top slope for each landfill unit should be sufficient to preclude ponding of surface water when total fill height and expected settlement or subsidence are taken into consideration.

Maximum Grade of the Final Cover Side Slope for Each Landfill Unit: Enter the maximum design grade of the final cover side slopes for each landfill unit. The top surfaces and external embankment slopes of municipal solid waste landfill units must be designed to minimize erosion and soil loss through the use of appropriate side slopes, vegetation, and other structural and nonstructural controls, as necessary.

Other Information: Enter other information as applicable.

## Final Cover Drainage Features

Final Cover Drainage Features: Itemize and briefly describe existing or proposed storm water and erosion control features incorporated on the final cover of each landfill unit to protect the system integrity and effectiveness. These features and structures may include diversion berms, terraces, letdown chutes, swales, flumes, spillways, collection pipes, etc. The description may include references to maps and other parts of the Site Development Plan where the structures are shown or described in detail.

## Final Cover Vegetation or Other Ground Cover Material

Enter information that addresses the final cover vegetation and other ground cover materials coverage of the top and side slopes surfaces (shown to be consistent with the vegetation cover and other ground cover material value used in the soil erosion loss calculation using the Universal Soil Loss Equation).

1. Table 3. Minimum Specification for Ground Cover Materials Other Than Vegetation, if Applicable.

Material Components: Enter the components that make up the vegetation replacement material.

Particle Size (inches): For granular materials, enter the values of the maximum and minimum particle sizes.

Material Placement Method: Enter the method utilized for placing the material.

Thickness of Layer (inches): Enter the after-placement thickness of the material.

Percentage Coverage (%): Enter the percentage of the final cover surface covered by the vegetation replacement material.

Other Information: Enter other pertinent information as necessary.

# Description of the Final Cover System Installation Procedure

## Mode of Installation

1. Mode of Final Cover Installation on the Landfill Units.

Enter landfill unit name and the projected largest area (in acres) of the unit that will require a final cover during the active life of the unit. This area would in general correspond with the projected maximum area that would contain disposed or deposited or buried waste at a particular time period during the unit’s active life. NOTE: Proper planning, analysis, and timing of final cover installation will be needed to determine the largest area that would be available for installation of final cover at any time during the active life of the unit. The default value, for landfills where final cover installation coincides with completion of disposal activities or closure of the unit, would be the total area with deposited waste at the cessation of waste acceptance or at closure of the unit, i.e., the area of the unit’s total waste footprint.

Check the applicable mode of final cover installation for the unit. Final cover installation may be done in installments as each area of a unit attains permitted elevation or in whole when all areas of a unit attain permitted elevation.

**Final Cover Installation Status:** The final cover installation status for a unit may be entered as – (a) yet to be installed (i.e., no part of the unit has installed final cover at this time) or (b) partially installed (i.e., part(s) of the unit has existing final cover) or (c) installation completed (the entire unit has existing final cover).

## Installation Drawings for Final Cover and Drainage Features

Enter information to identify the plan and cross-section drawings that show the final cover cross-sections, sequence of final cover system installation, drainage features, largest area requiring final cover, etc.

## Final Cover Quality Control Plan (FCQCP)

A plan that describes the final cover system materials, components, construction, testing, and QA/QC (quality assurance and quality control) criteria for all the elements of the final cover system. If an alternative final cover is proposed in lieu of the standard Subtitle D final cover, the FCQCP will include a description of the design and configuration of the alternative final cover and a demonstration showing that the alternative final cover achieves an equivalent reduction in infiltration and provides equivalent protection from wind and water erosion as the standard Subtitle D final cover.

# Closure Activities and Completion Schedules for Each Landfill Unit and for the Final Facility Closure

Activities to be conducted to satisfy the closure criteria for a landfill unit, storage or processing units, and for the final facility closure are listed under Section V. of the Closure Plan. You may enter additional activities that are specific to the closure of units in your facility.

Enter the figure number for the chart that shows the timeline for the closure of a landfill unit.

Enter the figure number for the chart that shows the timeline for the closure of the facility.

Enter the name and address of the public place within the area, where the plan will be available for public access and review.

Attach charts that show the closure schedules for a landfill unit and for the final facility closure.

**Facility Layout Map:** An engineering drawing that shows all landfill, storage, processing, or recycling units at the facility that will need closure at some point during the life of the facility.

# Summary of Attachments

Enter the figure numbers for the attached drawings, maps, and documents.