

**SKYLINE LANDFILL
CITY OF FERRIS
DALLAS AND ELLIS COUNTIES, TEXAS
TCEQ PERMIT APPLICATION NO. MSW 42D**

PERMIT AMENDMENT APPLICATION

**PART III – FACILITY INVESTIGATION AND DESIGN
ATTACHMENT H
CLOSURE PLAN**

Prepared for

Waste Management of Texas, Inc.

April 2012

Revised August 2012



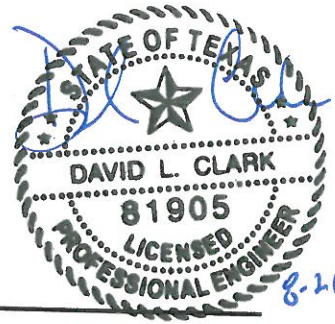
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1 INTRODUCTION

30 TAC §330.63(h) and §330.457

Consistent with 30 TAC §330.63(h), this facility closure plan provides the information required by §330.63(h) and §330.457. In accordance with 30 TAC §330.457(f)(1), a copy of the closure plan will be placed in the site operating record. The closure plan includes drawings that depict the final constructed contour plan of the entire landfill including surface water entering and exiting the landfill and the location of the 100-year floodplain. The closure plan also includes the procedures to be taken for ongoing closure of the facility and following final acceptance of waste. The final cover system, final cover construction details, closure procedures, and a closure schedule are also included.

1.1 Waste Disposal Areas

The proposed Skyline Landfill permit boundary is approximately 662 acres. The Subtitle D waste disposal footprint includes approximately 284.4 acres for Phases 1, 2, and 3 and 4.2 acres for Phase 5. The Phase 4 designation (used for current permitted configuration) will not be used for phases with this expansion. Phase 5 will not accept any additional waste.

There are approximately 68.3 acres of pre-Subtitle D area that have received final cover and will not accept additional waste. The remaining site is currently active and all future development is under Subtitle D standards and requirements.

Refer to Part III, Attachment E, Appendix E3 and Part III, Attachment D2 for cross-sections through the waste disposal areas including Phases 1 through 3, Phase 5 and the pre-Subtitle D area.

1.1.1 Phase I Final Cover Construction

Based on the available documentation included in Appendix H4, the alternate final cover has been constructed over two areas, approximately 20.1 acres, along the southern portion of the landfill footprint in Phase I. Refer to Section 2 for design discussion on the alternate final cover. The final cover system evaluation reports for the two final cover areas were approved by TCEQ on March 19, 2008 and May 22, 2012.

1.1.2 Pre-Subtitle D Area Final Cover Construction

Based on the available documentation included in Appendix H5, the two pre-Subtitle D final cover systems have been constructed over the entire 68.3-acre pre-Subtitle D area. The pre-Subtitle D area is referred to as Permit 42A in the Appendix H5 documentation since Permit 42A was the current permit number at the time of correspondence. Refer

to Section 2 for design discussion on the pre-Subtitle D final cover systems. The final cover constructed over the pre-Subtitle D area has been certified and the reports approved by TCEQ.

2 FINAL COVER SYSTEM

30 TAC §330.457

2.1 Final Cover System Design

2.1.1 Phases 1 – 3 and Phase 5 Area Final Cover

There are two final cover systems that will be constructed at the Skyline Landfill. The approved alternate final cover system will be installed over the waste fill areas in Phases 1 through 3 and Phase 5 where the waste footprint has not changed. The Subtitle D final cover system will be installed over the expanded waste fill areas in Phase 3. The TCEQ approval for the alternate final cover, dated March 21, 2000, is included in Appendix H3.

The Subtitle D final cover system will consist of an infiltration layer, a flexible membrane cover (FMC), a drainage layer, and an erosion control layer. The infiltration layer will consist of a minimum of 18 inches of compacted soil with a coefficient of permeability of less than or equal to 1×10^{-5} cm/sec. The flexible membrane cover will consist of a 40-mil LLDPE geomembrane or a 60-mil HDPE geomembrane placed over the infiltration layer. The drainage layer will consist of a geocomposite on side slopes. A geotextile will be installed as a cushion fabric on top slopes. The erosion layer will consist of a minimum of 36 inches of soil, of which the upper 6 inches is capable of sustaining native plant growth. The final cover will be vegetated following the construction of the final cover to minimize erosion.

The alternate final cover system will consist of an intermediate cover layer, an infiltration layer, a drainage layer, and an erosion layer. The infiltration layer will consist of a minimum of 18 inches of compacted soil with a coefficient of permeability less than or equal to 1×10^{-7} cm/sec. The drainage layer will consist of a double-sided geocomposite. The erosion control layer will consist of a minimum of 36 inches of soil with the top 6 inches capable of sustaining native plant growth. The final cover will be vegetated following the application of the final cover in order to minimize erosion. Final cover system details are shown in Appendix H2 – Final Cover System Details.

2.1.2 Pre-Subtitle D Area Final Cover

Two pre-Subtitle D final cover systems have been constructed over the 68.3-acre pre-Subtitle D area. The pre-Subtitle D final cover systems consist of an infiltration layer (varying thickness) and a 6-inch erosion layer. The southern half of the pre-Subtitle D area was constructed with an infiltration layer consisting of a minimum of 18 inches of soil with a coefficient of permeability less than or equal to 1×10^{-6} cm/sec. The northern half of the pre-Subtitle D area was constructed with an infiltration layer consisting of 30 inches of soil with the top 18 inches (minimum) having a coefficient of permeability less than or equal to 1×10^{-7} cm/sec. The final cover constructed over the pre-Subtitle D area has been certified and the reports approved by TCEQ.

2.1.3 Vegetation

The vegetation will be native and introduced grasses. Temporary cold weather vegetation will be established if required. Irrigation will be employed as needed until vegetation is established. Erosion control measures such as silt fences and straw bales will be used to minimize erosion until the vegetation is established. Areas that experience erosion or do not readily vegetate will be repaired and reseeded or sodded until vegetation is established, or the soil will be amended or replaced with soil that will support the grasses.

The final cover system will be maintained consistent with the procedures defined by Part III, Attachment C1, Section 6.2, (Final Cover Stormwater System Maintenance Plan), on the areas of constructed final cover prior to facility closure. Following facility closure, the final cover system will be maintained consistent with the procedures defined in Part III, Attachment I, Section 2, (Postclosure Care Activities).

2.2 Installation Methods and Procedures

The final cover system will be constructed in accordance with the project construction drawings and specifications and the Final Cover Quality Control Plan (FCQCP) presented in Part III, Attachment D8. Testing and evaluation of the final cover system during construction will be in accordance with 30 TAC §330.457 and Attachment D8 – FCQCP.

3 CLOSURE PROCEDURES

30 TAC §330.457

3.1 Closure Sequence

The Skyline Landfill will conduct ongoing closure of the landfill throughout the active life of the landfill. The procedure allows for successive closure of fill areas by placement of final cover, construction of drainage and erosion control features, and establishment of vegetative cover. This procedure will be followed until all sectors have been closed. All areas, regardless of the time of closure, will be closed in accordance with the applicable regulations and the closure plan, and a Final Cover Evaluation Report (FCER) will be submitted documenting closure activities.

3.2 Closure During Active Life

As described above, the final cover will be constructed as fill areas achieve the design contours. Should closure of the landfill become necessary at any time during the active life of the landfill, the following steps shall be taken:

- The final waste received will be placed and properly compacted.
- Excavations will be filled with suitable material, and the site will be graded to promote runoff and prevent ponding.
- The top of the landfill will be regraded and reshaped as needed to provide the proper slope for positive drainage.
- The final cover system will be constructed consistent with the details included in Appendix H2 – Final Cover System Details.
- During the first growing season following application of final cover, the site will be vegetated with appropriate grasses to minimize erosion.
- A surface water management system will be constructed to minimize erosion.
- A closure certification will be prepared by a registered professional engineer and submitted to the TCEQ for approval.
- All proper notices and documentations will be filed with the appropriate agencies and governmental bodies.

3.2.1 Estimate of Largest Area Requiring Final Cover

The largest area requiring final cover extending through the active life of the landfill is the existing filled area consisting of approximately 134.4 acres that will require final cover construction. Final cover has been installed over 20.1 acres in Phase I. Refer to Appendix H4 for the Phase I final cover area construction documentation. The largest area requiring closure for the purposes of determining final closure construction cost is addressed in Part III, Attachment J – Cost Estimates for Closure and Postclosure Care.

3.2.2 Estimate of Maximum Inventory of Waste On Site

The estimate of maximum inventory of waste and operational cover on site over the active life of the facility is approximately 80.6 million cubic yards, which is the total volume available through this permit application and existing waste currently in place. Table 1 below shows the amount of the in-place waste for Phases 1 through 3, Phase 5, and the pre-Subtitle D area and the remaining waste disposal capacity for Phases 1 through 3, Phase 5 and the pre-Subtitle D area will not receive additional waste. Refer to Part III, Attachment D4 – Site Life for site life calculations.

Table 1
Skyline Landfill
Maximum Inventory of Waste
MAXIMUM INVENTORY OF WASTE (CY)

<u>Area</u>	<u>In-Place</u>	<u>Remaining</u>	<u>Total</u>
<u>Phases 1 through 3^A</u>	<u>20,600,000</u>	<u>53,500,000</u>	<u>74,100,00</u>
<u>Phase 5^A</u>	<u>100,000</u>	<u>-</u>	<u>100,000</u>
<u>Pre-Subtitle D^B</u>	<u>6,400,000</u>	<u>-</u>	<u>6,400,000</u>
			<u>TOTAL: 80,600,000</u>

^A – Capacity based on March 4, 2012 Flyover. Phase 5 will not receive additional waste.

^B – In-place waste provided by Attachment G, Appendix G5-B, Page G5-B-3. Year: 1997, Estimated Compaction: 1,000 lb/cy³.

4 CLOSURE SCHEDULE

30 TAC §330.457, §330.461

4.1 Final Cover Construction

During the active life of the landfill, final cover will be placed in phases as areas reach the design top of waste grades. Generally, the final cover will be placed in phases of 10 to 30 acres. Final cover placement over completed portions of the site will consist of the following steps:

- Survey controls will be implemented to control the filling of solid waste to the bottom level of the daily/intermediate cover layer elevation.
- The final cover system layers will be constructed. Testing of the various components of the final cover system will be performed in accordance with Attachment D8.
- A final cover certification report and an as-built survey will be prepared by an independent registered professional engineer and submitted to the TCEQ for approval.
- The TCEQ-approved final cover certification report will be maintained in the site operating record and the final cover log will be updated to reflect the area where final cover has been placed. The TCEQ region office will also be notified.

4.2 Final Closure Activities

Once the facility has received its final waste, the facility will be closed consistent with 30 TAC §330.457. The final closure activities will be accomplished as outlined below.

- No later than 90 days prior to initiation of final facility closure, a public notice of facility closure that contains the name, address, and physical location of the facility, the permit number, and the last date of intended receipt of waste will be placed in the newspaper of the largest circulation in the vicinity of the facility. Waste Management of Texas, Inc. (WMTX) will also make available an adequate number of copies of the approved final closure and postclosure plan for public access and review.
- No later than 45 days prior to initiation of final closure activities for a landfill unit, WMTX will provide written notification to the executive director of the TCEQ of the intent to close and place this notice in the operating record.

- Following notification of the executive director of the TCEQ of final facility closure, a minimum of one sign will be posted at the main entrance and all other frequently used points of access notifying all persons utilizing the facility of the closure date or date on which further receipt of waste is prohibited. In addition, barriers or gates will be installed at all access points following the closure date to adequately prevent unauthorized dumping of solid waste at the closed facility.
- Final closure activities will commence within 30 days after known final receipt of wastes, except as provided in Section 4.3.
- Final cover installation will, in accordance with the approved closure plan, be completed within 180 days after the final receipt of waste.
- Final closure activities will be completed within 180 days of initiation of final closure activities, except as provided in Section 4.3. Following completion of final closure activities, a documented certification signed by an independent licensed professional engineer will be submitted by registered mail to the TCEQ for review and approval. This certification will verify that final closure has been completed in accordance with the closure plan and will include all applicable documentation necessary for certification of final closure. Once approved, this certification will be placed in the operating record.
- Within 10 days after completion of final closure activities of all landfill units at the facility, a certified copy of an Affidavit to the Public (see Figure H1.2) will be submitted by registered mail to the TCEQ in accordance with §330.19 and a copy placed in the operating record. In addition, a certified notation will be recorded on the deed to the facility or similar instruments that will in perpetuity notify any potential purchaser of the property that the land has been used as a landfill facility and the use of the land is restricted according to the provisions specified in the Postclosure Care Plan. Within 10 days after completion of final closure activities of the facility, a certified copy of the modified deed will be submitted to the TCEQ and a copy placed in the operating record.

These steps in the closure process are depicted on Figure H1.1. Following receipt of the required final closure documents and an inspection report from the TCEQ region office verifying proper closure of the MSWLF facility, according to the approved closure plan, the executive director may acknowledge the termination of operation and closure of the facility and deem it properly closed. Postclosure care maintenance will begin immediately upon the date of final closure as approved by the TCEQ.

4.3 Provisions for Extending Closure Period

If the Skyline Landfill has remaining capacity in a landfill unit at the time of its closure, final closure activities will begin no later than one year after the most recent receipt of wastes. Any request for an extension beyond the one year deadline for the initiation of final closure will be submitted to the executive director for review and approval and will include all applicable documentation to demonstrate that the unit or site has the capacity to receive

additional waste and that WMTX has taken and will continue to take all steps necessary to prevent threats to human health and the environment.

If necessary, a request for an extension of the completion of final closure activities will be submitted to the executive director for approval. This request will include all applicable documentation necessary to demonstrate that final closure will, of necessity, take longer than 180 days and all steps have been taken and will continue to be taken to prevent threats to human health and the environment.

5 CLOSURE COST ESTIMATE

30 TAC §330.503(a)

The estimated cost of hiring a third party to close the largest area of the landfill requiring final closure at any time during the active life of the unit is provided in the detailed cost estimate included in Part III, Attachment J.

The cost estimate shows 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 at any time during the active life of the site when the extent and manner of site operations would make closure the most expensive.