

Final Closure Plan

Attachment III-L

**Terrabon, Inc.
Bryan, Texas**

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Section 1

Introduction

Terrabon, Inc. (Terrabon) owns and operates a municipal solid waste (MSW) energy recovery facility (i.e., Type V facility) located in Bryan, Texas. As such, the facility has various onsite units, which are used to facilitate energy recovery, subject to MSW registration. This Final Closure Plan has been provided per the requirements of 30 TAC Chapter 330, Subchapter K to outline procedures for closure of the facility. As further detailed in this plan, MSW, MSW residues, and any recovered materials will be removed, and facility units will be decontaminated.

Section 2

Unit and Waste Descriptions

There are four areas addressed by this closure plan: 1) tipping floor area and interior working areas of the tipping building; 2) hydromulcher pump area; 3) fermentation basin; and 4) storage/recirculation tanks. As detailed elsewhere in the application, the Terrabon facility manages up to 25 tons/week of MSW.

Section 3

Closure Procedures

Activities specified in this section are for decontamination of facility units and structures to support final facility closure.

3.1 Closure Scenario

It is expected that closure activities described in this plan will be performed by Terrabon personnel and/or contractors selected by the facility. However, closure costs reflected in this plan are based on the “worst-case” closure requirements detailed in 30 TAC Chapter 330, Subchapter L. As such, closure costs are based upon closure of the facility by a third-party at the point in time of maximum inventories.

3.2 Oversight by a Professional Engineer

Closure activities will be supervised by an independent, professional engineer (P.E.) licensed in the State of Texas to facilitate the certification of closure requirements detailed in 30 TAC 330.461. Following completion of closure, the P.E. will prepare a closure certification report in accordance with the criteria specified in Section 5.

MSW management units are located either within a building and/or in a contained area. The P.E. certifying closure will visually inspect the units and associated flooring, sumps, and surrounding areas prior to beginning closure activities to determine if evidence of releases from the units to soils and/or groundwater exists. Items to be noted during the visual inspection include, but are not limited to the following:

- Indication of leaks,
- Significant stained areas,
- Condition of seams and expansion joints;
- Cracks in the concrete in the vicinity of the unit; and
- Location of drain piping and/or sumps.

During the visual inspection of the concrete surfaces if the P.E. determines that there is evidence of a release (e.g., separated concrete, extensive concrete patching, concrete cracks, broken pipe joints, etc.), then the P.E. will select soil sampling locations and undertake an initial investigation into the nature and extent of any release that may have occurred.

3.3 Closure Procedures

The procedures for closure will include the following steps, which described in further detail below:

- Step 1 – Removal of MSW, MSW residues, and recovered materials;
- Step 2 – Decontamination of facility units and working floor areas; and
- Step 3 – Collection of soil samples (if required).

Step 1 – Removal of MSW, MSW Residues, and Recovered Materials

As part of the final closure activities, MSW, MSW residues, and/or recovered materials that may be present will be processed or removed from the following components:

- Working floor areas;
- Any containers (e.g., carts, bins, etc.) present; and
- Facility units

Assuming that facility units are still operational, removal of waste and waste residues that may be present will be accomplished by processing the materials in the fermentation basin, tanks, and supporting equipment. If facility units are not operational or if Terrabon elects, removal of MSW and MSW residues may be placed into appropriate containers for subsequent management at an authorized offsite MSW facility. For costing purposes, the latter scenario is assumed.

Recovered materials, if present, will be placed into appropriate containers for subsequent management at an authorized offsite MSW facility.

After these initial removal activities, facility units will be taken out of service to facilitate physical removal of any remaining materials as well as residues (e.g., ash, solids, etc.). To enhance physical removal, brooms, rakes, and/or other hand tools will be used to remove visible solid materials that can be practically removed. Solid materials present will be collected, placed in containers, and disposed of at an authorized facility. Any liquid materials present in the units will be routed to the sump drains and discharged to the wastewater collection system for subsequent processing at the City of Bryan POTW.

Step 2 – Decontamination

Decontamination of working floor surfaces (tipping floor as well as fermentation basin) and facility units will be performed using a rinsing solution consisting of a water (10 parts) and

bleach (1 part) mixture. Rinsing will continue until visible waste and residue has been removed and all surfaces (of flooring and equipment) that were in contact with MSW and residues have been rinsed. Water rinsing may consist of a high-pressure wash, if necessary, to achieve removal of visible materials.

Rinse waters will be directed to the sump drains and routed to the wastewater collection system for subsequent discharge to the City of Bryan POTW.

Step 3 – Collection of Soil Samples

If the P.E. determines that evidence of a release exists, the following procedures will be used for collection of soil and/or groundwater samples.

To determine if soil has been contaminated with MSW, soil samples will first be collected in the vicinity of the unit. At least two soil samples will be obtained from soils under or in close proximity to (i.e., near the edge of) the concrete. The decision to collect more than two soil samples will be made by the supervising P.E. based on the visible inspection of the concrete. As reflected in Section 3.2, the P.E. will be looking for areas that exhibit signs of contamination, staining, or deterioration.

Soil samples will be analyzed for the presence of pathogenic agents. If no pathogenic agents are detected in the soil sample(s), a determination will be made that no release has occurred from the unit and no post-closure care is required. If constituents are detected, measured values will be assessed by Terrabon and TCEQ to determine the extent of further investigations, corrective actions, and/or post-closure care requirements.

Section 4

Notification of Closure Activities

At least 90 days prior to initiation of final facility closure, Terrabon will publish in the newspaper(s) of largest circulation in Bryan, Texas public notice of closure in accordance with 30 TAC 330.461(a). Copies of this final closure plan will be available onsite for review to any members of the public who may request a copy of the plan. Terrabon will also notify TCEQ in writing of closure activities at least 90 days prior to the date on which final facility closure is expected to commence. Such notification will be sent to both the TCEQ Central Office and the appropriate TCEQ District Office. Terrabon will place a copy of the TCEQ notification in the facility operating record.

After making the above 90-day notifications, Terrabon will place a sign at the facility notifying those bringing MSW to the facility of the date of facility closure and prohibition of receiving further materials after the date of closure. Additional barriers, as required, will be placed at facility gates to prevent unauthorized dumping of MSW at the facility after the date of closure.

Section 5

Closure Certification

Within 10 days of completing final closure activities at the facility, Terrabon will submit to TCEQ via registered mail a certification signed by an independent P.E. licensed in the State of Texas that verifies closure has been completed in accordance with the approved closure plan. Since MSW will not remain at the facility after closure, an “affidavit to the public” and deed recordation of the site are not required and a request for voluntary revocation of the permit will be submitted.

The closure certification report will include the following information:

- A summary of closure activities performed;
- Locations of where any soil samples were taken; and
- Results of analyses for any soil samples, if taken.

Drawings included in the reports will identify any sample locations and depths with identification numbers that are cross-referenced to sample results. In addition, reports will include the results of visual inspections performed both during and after closure.

Section 6

Permit Modification

If a change in the approved closure plan is required, Terrabon will submit a permit modification to the TCEQ requesting authorization of a change in the plan. Such a modification will be submitted per the provisions of 30 TAC 305.70(j)(6) as a modification without notice.

Section 7

Closure Cost Estimate

Estimated closure costs for final facility closure are provided in Appendix A. The estimated closure cost reflects “worst case” conditions at the time of closure. Consequently, activities reflected in this estimate may differ somewhat from the activities that would be conducted by a closure led by Terrabon. In addition, this cost estimate is based on the fact that these facilities are constructed on a concrete slab and that the facility has had no record of a release to the environment. The following summarizes the basis of the closure cost estimates:

- Closure is based on abandonment of the site with full capacity of one week of inventory (i.e., the maximum storage capacity of 25 tons in the tipping building);
- Closure activities are performed by a third party;
- The units and working floors will be cleaned using high pressure cleaning with a bleach/water mixture;
- It is assumed that two soil samples will be collected and analyzed to determine potential contamination of soil;
- Liquids and washwaters will be disposed offsite at the City of Bryan POTW; and
- All solid wastes will be shipped offsite for processing/disposal at an authorized facility.

Section 8

Post-Closure Care

Because the facility is a production facility and does not have land-based units (i.e., is not a landfill) and because it is not located in the 100-year floodplain, no specific fill and capping is required and no post-closure plan is required. Further, at closure, materials will be removed and decontamination will be accomplished. The Terrabon facility is not subject to the post-closure care requirements of 30 TAC 330.463(a)(1).

Appendix A

Supporting Information for Closure Cost Estimate

Appendix A Final Facility Closure Cost Estimate

Assumptions/Notes:

- Facility has the maximum permitted amount of MSW onsite, which is 25 tons (i.e., a week's volume) and all is managed as MSW
- Independent contractor (i.e., not Terrabon) performs all closure activities
- Waste disposal rates (\$0.25/lb) and transportation costs (\$250/roll-off) based on market rates for third party commercial services
- Facility equipment is inoperable (i.e., remaining MSW is not processed onsite) and equipment necessary for closure is rented
- Each roll-off container used for transportation holds 15 tons of MSW
- Decontamination is performed with a high pressure (3000 psi) low volume (4 gpm) washer
- Cost to discharge washwater to City of Bryan POTW is \$4.99/1,000 gallons

Activity	Unit Cost	Units	Cost
Removal of Waste and Waste Residues			
Labor for a supervisor and two laborers	\$150/hr	10 hours	\$1,500
PPE and misc. supplies	\$300	1	\$300
Transportation cost	\$250/roll-off	2 roll-offs	\$500
Rental rate on loader	\$200/day	1 day	\$200
Disposal cost	\$30/ton	25 tons	\$750
Activity Cost			\$3,250
Decontamination of Working Floor Areas and Equipment			
Labor for a supervisor and two laborers	\$150/hr	60 hours	\$9,000
Rental of pressure washer	\$100/day	9 days	\$900
PPE and misc. supplies	\$400	1	\$400
Washwater disposal	\$4.99/1,000 gal	14,400 gal	\$72
Activity Cost			\$10,372
P.E. Supervision and Certification of Closure			
Labor for engineer	\$140/hr	72 hours	\$10,080
Activity Cost			\$10,080
Sub-Total Cost			\$23,072
10% Contingency			\$2,370
Total Estimated Final Facility Closure Cost			\$26,072