CLOSURE AND POST-CLOSURE CARE PLAN
Revision 1

Fort Armistead Road–Lot 15 Industrial Landfill
Baltimore, Maryland

Prepared for:
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Geosyntec Project Number: MR1352A
Document Number: MD16156
October 2016
Closure and Post-Closure Care Plan  
Coal Combustion Residual (CCR) Unit: Fort Armistead Road - Lot 15 Industrial Landfill

Certification:

I, R. David Espinoza, a registered professional engineer in the state of Maryland certify that this Closure and Post-Closure Care Plan meets the minimum requirements of 40 CFR §257.102 and 40 CFR §257.104, which regulate closure and post-closure care of coal combustion residual disposal units.

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EXECUTIVE SUMMARY

This Closure and Post-Closure Care Plan (Plan) addresses the requirements for landfill closure and post-closure care for the Fort Armistead Road – Lot 15 Industrial Landfill (Lot 15 Landfill). The 65-acre parcel, of which the total planned landfill footprint is 32.4 acres, is located at 3601 Fort Armistead Road in Baltimore City, Maryland.

COMAR 26.04.10 (Management of Coal Combustion Byproducts), Section 04.C requires that Coal Combustion Residuals (also referred to as Coal Combustion Byproducts) disposal facilities follow the guidelines for closure and post-closure of landfills outlined in COMAR 26.04.07.21 and 26.04.07.22, respectively. Additionally, 40 CFR 257.102 and 257.104 address Federal regulations for closure and post-closure care of Coal Combustion Residuals disposal facilities, respectively. Accordingly, this Plan has been prepared to meet these aforementioned requirements.

The requirements for facility closure (i.e., COMAR 26.04.07.21 and 40 CFR 257.102) specify that to close a landfill, the Owner will perform activities that are intended to minimize the need for further maintenance of the landfill and minimize the potential for escape of waste and leachate constituents. These closure activities include construction of a final cover system and a stormwater management system. Each of these activities is described in detail in this Plan.

The requirements for post-closure (i.e., COMAR 26.04.07.22 and 40 CFR 257.104) will be met by performing maintenance for the final cover system, vegetation associated with the landfill facility, leachate management system, groundwater monitoring system, stormwater management system, and other miscellaneous site features. The procedures for monitoring groundwater, and leachate quality and quantity are described in detail in this Plan. The proposed post-closure care period is 30 years with an evaluation of the cover conditions, stormwater features, and other pertinent structures.
1. INTRODUCTION

1.1 Terms of Reference

On behalf of Fort Armistead Road – Lot 15 Landfill, LLC (a wholly owned subsidiary of Raven Power), Geosyntec Consultants (Geosyntec) has prepared this document for the Fort Armistead Road – Lot 15 Industrial Landfill (Lot 15 Landfill or the Site), located in Baltimore City, Maryland, to address closure and post-closure care requirements for the Site. A Closure and Post-Closure Care Plan (Plan) for the Site was previously provided to the Maryland Department of the Environment (MDE) as Appendix L in the Phase III Report [Geosyntec, 2012] and approved by MDE. Subsequently, the United States Environmental Protection Agency (USEPA) promulgated the Coal Combustion Residuals (CCR) or Byproducts (CCB) Rule contained in Section 257, Subpart D of Title 40 of the Code of Federal Regulations (CFR). Sections 102 and 104 of the CCR Rule contain additional closure and post-closure care requirements that were not addressed in the 2012 Plan. Consequently, the 2012 Plan requires revisions to comply with the additional CCR Rule requirements. Those revisions have been incorporated herein so that this revised Plan meets both MDE and CCR Rule applicable regulatory requirements.

1.2 Site Description

The Site consists of 65 acres with a total planned landfill footprint of 32.4 acres. The Site is located in the Curtis Bay area on the southeast quadrant of the intersection of Fort Smallwood Road and Fort Armistead Road in Baltimore, Maryland as shown on Figure 1. The Site is bounded to the north, east, and west by Fort Armistead Road, CSX railroad tracks, and Fort Smallwood Road, respectively. A light industrial business is located adjacent to the south of the Site. A Site Plan depicting the approximate limits of the active and future CCR disposal areas, property boundary, and other relevant Site features is provided as Figure 2.

The facility was originally permitted as the Hawkins Point Plant (HPP) Landfill and consisted of two parcels, one 30 acres in size and one 65 acres in size that were bisected by a CSX Railroad right-of-way, effectively resulting in two separate landfills. In 2009, the 65-acre parcel had not yet been developed as a landfill and was split off from the 30 acre parcel and re-permitted as the Site to serve as a CCR landfill under MDE solid waste regulations.

The Site became operational in 2011 and is currently permitted (Refuse Disposal Permit Number 2011-WIF-0653) through at least September 2018 to receive CCR and other
compatible and approved materials generated from the Brandon Shores, H.A. Wagner, and C.P. Crane energy generating plants. The maximum inventory of CCRs expected to ever be contained in the 32.4-acre disposal area at any time is estimated to be 6.4 million cubic yards. Assuming a compacted density of 1.1 tons per cubic yard, this is equivalent to 7.0 million tons of CCRs. The largest area of the landfill ever requiring a final cover is estimated to be 1.2 million square feet (i.e., 27.5 acres).

1.3 Regulatory Requirements

Coal combustion residual or byproduct landfills in the State of Maryland are regulated under the Title 26, Subtitle 04, Section 10 of the Code of Maryland Regulation (COMAR). As stated in COMAR 26.04.10.04C(3) and (4), industrial landfill closure and post-closure monitoring and maintenance requirements in COMAR 26.04.07.21 and 26.04.07.22 are applicable to CCR disposal facilities. On a Federal level, CCR landfills are regulated under the newly promulgated CCR Rule (40 CFR Part 257, Subpart D). Sections 102 and 104 of CCR Rule describe the closure and post-closure care requirements, respectively, for CCR units. Accordingly, this Plan has been prepared to meet the State of Maryland and Federal requirements regarding CCR unit closure specified in COMAR 26.04.07.21 and 40 CFR 257.102 and post-closure care specified in COMAR 26.04.07.22 and 40 CFR 257.104.

1.4 Definitions

The following definitions are used throughout this Plan in relation to closure and post-closure care. These definitions are consistent with the definitions presented in COMAR and the CCR Rule, but they have been clarified for closure and post-closure care activities at the Lot 15 Landfill.

- “Closure” is defined as cessation of CCR disposal into the Lot 15 Landfill. The owner does not anticipate implementing closure activities during the operating life of the Landfill.
- “Final Closure” is defined as construction of the final cover system for the entire landfill area, completion of the stormwater management (SWM) system and site access roads, revegetation of all disturbed areas, and development of post-closure use features (if any).
“Final Cover System” refers to the cap that will be constructed over the grading layer. In accordance with COMAR 26.04.07.21.H and 40 CFR 257.102(d)(3)(i), the final cover system includes the following components:

- Low-permeability (no greater than $1 \times 10^{-5}$ centimeters/second) cap (which is described in the following paragraph);
- A drainage layer;
- Final earthen cover (minimum 18 inches thick); and
- Vegetative stabilization (minimum 6 inches thick).

“Low-Permeability Cap” consists of the geosynthetic material component of the final cover system. The low-permeability cap will be a 40-mil high density polyethylene (HDPE) geomembrane, with a maximum permeability of $1 \times 10^{-10}$ cm/s. The proposed geomembrane meets the permeability requirements of both COMAR 26.04.07.21.E(1) and 40 CFR 257.102(d)(3)(i)(A). The proposed geomembrane exceeds the thickness requirements of COMAR 26.04.07.21.E(1). In addition, the cap shall be installed with a minimum slope of 4 percent to facilitate surface water runoff.

“Post-Closure Care” is defined as the maintenance and monitoring activities that will be performed during the period following final closure. In accordance with 40 CFR 257.104, the post-closure care period will be 30 years. Post-closure care includes all activities that will be performed following closure, including: (i) operation of the leachate, landfill cap, and SWM systems; (ii) long-term maintenance; and (iii) environmental monitoring.

1.5 Plan Organization

The remainder of this Plan is organized as follows:

- Section 2 – Closure plan;
• Section 3 – Post-closure care plan;
• Section 4 – Required submittals and notifications;
• Section 5 – Financial assurance; and
• Section 6 – Document references.
2. CLOSURE

2.1 Introduction

The final closure system components and methods, procedures, and processes that will be employed by the Owner to close the Lot 15 Landfill are presented in this section. An estimated closure schedule is also presented. The components, methods, procedures, processes, and estimated schedule described in this section have been selected to meet the performance objectives of COMAR 26.04.07.21 and 40 CFR 257.102(d) which can be summarized as:

- Control, minimize or eliminate, to the maximum extent feasible, post-closure infiltration of liquids into the waste and releases of CCR, leachate, or contaminated run-off to the ground or surface waters or the atmosphere;
- Preclude the probability of future impoundment of water, sediment, or slurry;
- Include measures that provide for major slope stability to prevent the sloughing or movement of the final cover system during the closure and post-closure care period;
- Minimize the need for further maintenance of the CCR unit through minimization of erosion; and
- Be completed in the shortest amount of time consistent with recognized and generally accepted good engineering practices.

2.2 Final Closure System

2.2.1 Overview

The closure system will consist primarily of two components, a final cover system and a stormwater management system (SWM). The leachate management system, which will be functional during the closure and post-closure period, is not considered to be a closure system component because it will have already been constructed and in operation before final closure. A landfill gas management system will not be constructed at the Site because CCRs are inert materials that are not expected to generate gas. Construction of the landfill cover system and SWM components of the closure system are described in the sections below.
2.2.2 Regrading

After the final lift of CCRs is placed and before construction of the final cover system, the surface of the landfill will be graded to achieve the design final grades (Drawing 7 in Appendix A of the Phase III Report [Geosyntec, 2012]). In preparation for construction of the final cover system: (i) CCRs will be regraded to provide smooth grades for the final cover system; (ii) any erosion of the final cover will be repaired; and (iii) proper stormwater drainage for the final cover system will be provided. The material for the final grading soil layer will be obtained either from on-site or off-site borrow areas and will conform to the requirements for soils identified in the specifications. Construction of closure system components will be performed in accordance with the construction quality assurance procedures developed for this project (i.e., Appendix N – Construction Quality Assurance Plan of the Phase III Report [Geosyntec, 2012]).

During final grading of the landfill final cover, some areas may require grading of CCRs or filling with additional CCRs in order to achieve the design final grades. Also, regrading may be needed to provide smooth slopes, to allow construction of cover access roads, or to provide proper drainage of cover terraces. If such grading is required, the Operator will excavate or place additional CCRs (as needed) following the procedures described in the Operations Plan (i.e., Appendix D of the Phase III Report [Geosyntec, 2012]), and will identify areas of the disposal area to receive the CCRs.

2.2.3 Landfill Final Cover System

The Owner will construct a final cover system across portions of the landfill that have reached final design grades. The landfill final cover system will be constructed in accordance with the requirements of COMAR 26.04.07.21 and 40 CFR 257.102. A cross section of the final cover system is shown in Figure 3. As shown on Figure 3, the final cover system will consist of a 40-mil geomembrane placed over a grading layer, which will be overlain by (in ascending order): (i) a geocomposite drainage layer; (ii) an 18-in. thick protective cover soil layer; and (iii) a 6-in. thick vegetated topsoil layer. The final cover system could be constructed in phases as portions of the landfill are filled to reach final grades. At the time of final closure, final cover terrace drainage features will be constructed above the final cover geomembrane and drainage layer.

2.2.4 Stormwater Management System

The Site has an existing SWM system designed for the dual purposes of: (i) minimizing erosion and off-site sedimentation and (ii) managing stormwater. After closure, the
primary purpose of the SWM system will shift from erosion and sediment control (because all surfaces will be stabilized with vegetation) to SWM (i.e., conveyance of stormwater in a non-erosive manner to the adjacent stormwater receiving facilities). During construction of the landfill’s final cover system, whenever necessary, additional permanent SWM features will be constructed. The permanent SWM system shown in the drawings (Appendix A of the Phase III Report [Geosyntec, 2012]) is designed to manage runoff from the entire Lot 15 Landfill final cover system. To modify the SWM system for long-term post-closure use, sediment control devices will be removed, accumulated sediment will be cleaned from the ponds, if necessary, and all disturbed areas will be stabilized with vegetation.

The Lot 15 Landfill SWM system features described below have been designed to minimize maintenance throughout the post-closure period.

- Drainage terraces to limit the length of stormwater sheet flow from the final cover slopes and thus limit erosion of the final cover soils.
- Relatively flat drainage channels to route drainage from the final cover at low, non-erosive velocities.
- Durable, hearty grasses for the vegetative cover that limit stormwater runoff and thus minimize erosion of the topsoil and vegetative support soil layers.
- Drainage features that transition gradually to prevent concentrations of flow that could damage the final cover system.

### 2.2.5 Leachate Collection and Management System

The design of the Lot 15 Landfill provides for containment of leachate throughout the landfill operation, closure, and post-closure care period and minimizes the possibility for leakage of leachate from the landfill to the environment. Design features that will provide for containment of leachate throughout the closure and post-closure period include: (i) the landfill liner and leachate collection system; (ii) the leachate removal and transmission system; (iii) leachate treatment/re-use procedures; and (iv) the final cover system. Those features are described below.

- **Liner and Leachate Collection System.** The liner system and leachate collection system is designed to provide containment of leachate throughout the post-closure care period. The liner system is illustrated on Drawings 4 and 5 in Appendix A of the Phase III Report [Geosyntec, 2012]. As shown on the drawings, the liner
system consists of a 60-mil HDPE geomembrane underlain by a compacted clay sub-base. Disposal areas will have a leachate collection system above the liner. The liner system is designed to prevent migration of leachate into the environment; as described in Appendix H of the Phase III Report [Geosyntec, 2012], the leachate collection system is designed to capture and convey leachate from within the disposal areas to the perimeter of the landfill for removal.

- **Leachate Transmission System.** As described above, leachate removed from the disposal area and conveyed to the on-site storage area. The leachate collection system will be functional throughout the post-closure period to remove any leachate that has collected in the leachate collection sumps. The transmission system will act to route leachate from the landfill cell to the on-site leachate storage pond. The transmission piping system will consist of HDPE pipe. The leachate will then be transported to a wastewater treatment facility (WWTF) permitted to accept the leachate.

- **Leachate Treatment System.** Throughout the post-closure period, leachate that is removed from the landfill will be transported to the WWTF. If, at some point in the future, leachate quality analysis indicates that constituent concentrations in the leachate meet applicable discharge guidelines or can be treated on-site in a constructed passive treatment system (e.g., through a reed bed or wetlands), then the Owner may petition MDE to alter the treatment methods for leachate at the site according to the provisions and procedures described in Section 4 of this Plan.

### 2.3 Estimated Closure Schedule

With regard to projected timing for closure, based on the available airspace (approximately 6.4 million cubic yards or 7.0 million tons) and disposal rate, the expected service life of the proposed landfill will be approximately thirty-six years. Therefore, as CCR placement started in November 2011, the Owner expects that the projected landfill closure date will be in 2047. A potential closure schedule based on the available airspace and volume of CCRs generated at the power plant facilities is as follows.

- A written notification of the intent to close the facility is submitted to MDE in June 2047.
- Placement of final lift of CCRs is completed on or before December 2047.
• As specified in 40 CFR 257.102(e)(1), construction of the final cover system will commence no later than 30 days after the date on which final placement of CCRs is completed.

• As specified in 40 CFR 257.102(f)(1)(i), closure activities will be completed within 6 months of commencing closure activities.

• A certification or notification of closure is submitted to MDE no later than 30 days after the end of construction. The final report of construction includes the quality assurance for the closure construction event. The certification will state that the closure was completed in conformance with the requirements of this Plan and will be signed by a Maryland licensed professional engineer.

• Following closure of the landfill, the Owner will record a notation on the deed to the property that notifies any potential purchasers of the property that the land has been used for disposal of CCR and that the property’s use is restricted under the post-closure care requirements described in this Plan. A notification that the deed notation has been recorded must be placed in the facility’s operating record within 30 days of recording the deed notation.

Please note, per the requirements of 40 CFR 257.102(e)(2)(i), in the event the facility is no longer receiving CCRs or any non-CCR waste stream, closure will commence within two years of the last receipt of waste. Provisions for securing extensions to closure timeframes, including the commencement and completion of closure activities, are included in 40 CFR 257.102(e)(2) and 40 CFR 257.102(f)(2), respectively.
3. POST-CLOSURE CARE

3.1 Introduction

After closure of the Lot 15 Landfill, the Owner will provide post-closure care, maintenance, and monitoring in accordance with the requirements of COMAR 26.04.07.22 and 40 CFR 257.104. In general, this will include: (i) operating the landfill to manage leachate and stormwater; (ii) monitoring groundwater and surface water at the site to detect potential releases of CCRs and/or leachate constituents that exceed regulatory requirements; (iii) maintaining the leachate management and SWM systems; and (iv) in the event of an exceedance, notifying the proper authorities of the problem and implementing corrective action. Post-closure activities not presented in this Plan will not be performed at the landfill unless approved in advance by MDE. The plan for providing post-closure operation, maintenance, and monitoring (OM&M) is presented in sections below.

3.2 Post-Closure Operation

During the post-closure care period, leachate may continue to accumulate at the bottom of the landfill. Accordingly, the leachate collection system may need to be operated, maintained, and monitored routinely as described in the Operations Plan (i.e., Appendix D of the Phase III Report [Geosyntec, 2012]). Other features of the landfill are not expected to be actively operated and will only be maintained and monitored. Operation of the leachate collection systems will be performed according to the procedures described in the Operations Plan until such time that leachate is either not produced or is produced in limited quantities. At that time, the Owner may demonstrate to MDE that collection of leachate is no longer necessary and, upon MDE’s approval, will cease operation of the leachate management systems.

3.3 Post-Closure Inspection and Maintenance

3.3.1 Access Control, Road System, and Buildings

Access to the Site throughout the post-closure period will be granted only to personnel engaged in approved post-closure activities. Access to the Site will be controlled by monitoring the perimeter security features (i.e., fences and lockable gates) and access roads. The Site perimeter fence will be inspected semiannually for breaks in the fence and to confirm that the gates are working properly. The fence and gates will be repaired as needed to provide continuous access control around the entire site.
On-site access roads and perimeter roads of the closed landfill will be maintained in a passable condition at all times during the post-closure period. These roads will be inspected semiannually for conditions that would prevent passage of vehicles (such as ruts, ponded water, washouts, gullies, ice or other obstacles). If needed, repairs will be made to keep the roads passable.

Buildings, if present, will be inspected annually and will be maintained to provide continuous support for landfill maintenance and monitoring activities.

3.3.2 Vegetation

Within three days after the final earthen cover has been installed, the area shall be vegetatively stabilized as required by COMAR 26.04.07.21. Vegetation (including permanent and screening vegetation) will be maintained in a condition that will minimize erosion of on-site soils (including the final cover soils), and will help screen the site from public view. In addition, vegetation will be in accordance with the 2011 Maryland Standards and Specifications for Soil and Erosion and Sediment Control, Section G – Vegetation Practices. During the post-closure period, maintenance will consist of inspections on a semiannual basis and after major storm events (i.e., 24-hour, 10-year or greater storm return frequency) to identify locations of excessive erosion, washout, poor vegetation density, and damaged vegetation. If required, the identified areas will be regraded to repair damage to the final cover soils, including areas of surface settlement or erosion and cracking of the cover soils, and/or revegetated as discussed below:

- **Surface Settlement.** If settlement is observed during routine inspections of the cover, the need for maintenance or repairs of the settled areas will be evaluated. Repairs will be needed if water is noted to be ponding in the area, resulting in distress to the vegetation or erosion problems. Repairs will consist of either filling the depressions or, if the depressions are significant, excavating to the geomembrane final cover system component, cutting the geomembrane, filling back to the grading layer grades beneath the geomembrane, repairing geomembrane seams in accordance with the specifications, then reconstructing the cover system over the area.

- **Erosion or Cracking of Cover.** If the cover soils are eroded, noted to be cracking, or otherwise damaged by burrowers then such areas will be repaired by filling erosion features, cracks and/or burrows, seeding, and fertilizing the new soils to establish vegetation in the new soil.
During landscaping inspections, on-site slopes will be inspected for stability. The inspector will identify any signs of sloughing of the slope surface, bulging at the toes of slopes, tension cracks at the tops of slopes, and other conditions that may indicate slope instability. Unacceptable vegetation (i.e., trees or shrubs) will be removed. If areas of instability are identified, MDE will be notified and appropriate remedial measures will be implemented. Also, mowing should be performed on a semiannual basis or as needed to control vegetation.

### 3.3.3 Stormwater Management System

The SWM system will be maintained to control run-on and runoff at the landfill. Run-on control will be provided by the perimeter berm, and the runoff will be prevented by the series of drainage terraces and channels in the final cover and around the perimeter of the fill area. The system will consist of all stormwater drainage ditches (both permanent and temporary), culverts, sedimentation basins, and associated sedimentation basin structures. The system will be maintained in a condition that allows continuous control of surface water at the site. During the post-closure period, drainage ditches, culverts, and stormwater basins will be inspected semiannually and after major storm events (i.e., 24-hour, 10-year or greater storm return frequency or 5.1-in. of rain) for conditions that could restrict flow, such as:

- washouts;
- excessive sediment and/or vegetation in ditches or culverts;
- dislodged rip-rap; or
- gullies or erosion.

Washouts, excessive erosion, and gullies will be repaired by regrading the areas to the proper design elevations, revegetating, or applying rip-rap. Ditches having excessive deposits of sediment and/or excessive vegetation that impedes flow will be cleaned. Dislodged rip-rap will be replaced as necessary.

The landfill cover system will inspected semiannually for evidence of standing water. Standing water will not be allowed to accumulate on the landfill cover system and will be remedied, as necessary.
3.3.4 Leachate Collection System

Routine maintenance will be performed on the leachate collection system to prevent clogging of the system. Maintenance will consist of cleaning all accessible leachate collection pipes through cleanouts. Cleaning will be performed annually during the post-closure period (unless experience indicates a lesser cleaning frequency is acceptable) until the leachate collection and leachate transmission, removal, and storage systems are taken out of service.

3.3.5 Leachate Removal and Transmission System

The components of the leachate removal and transmission system will be routinely inspected and maintained during the post-closure period to ensure that the system functions properly and that leachate is not released to the environment. Evaluation of the leachate removal and transmission system (i.e., leachate pumps, manholes, and leachate transmission lines) will be performed quarterly to check for evidence of malfunctioning pumps, broken lines, malfunctioning meters and valves, and/or damaged leachate manholes. In addition, the electrical controls for the leachate transmission system will be checked to confirm that they are functioning properly.

Leachate will be sampled semiannually (or at an alternate frequency approved by MDE or required by the waste water treatment plant) and will be tested for permit required constituents to evaluate the concentration of chemical constituents in the leachate. The results of the analysis will be submitted to MDE in conjunction with the groundwater report. After an appropriate length of time during the initial post-closure period (five years), if the chemical constituents in the leachate do not exceed the parameter concentrations identified in the permit for the Lot 15 Landfill or the quantity of leachate collected is sufficiently small, then the Owner will make a demonstration to MDE that the operation of the leachate collection system is no longer needed and could be halted. However, the leachate collection system would be left in place for use in the event that these features are needed at a future date during the post-closure period.

3.3.6 Groundwater and Surface Water Monitoring Infrastructure

Components of the groundwater and surface monitoring system include groundwater monitoring wells and surface water monitoring stations. Each sampling location will be inspected for damage during each sampling event (i.e., semiannual) and will be repaired or replaced, if necessary.
3.4 Post-Closure Monitoring

3.4.1 Introduction

The activities that the Operator will perform to monitor the site throughout the post-closure care period are described below. These activities include groundwater, stormwater, and leachate monitoring. The sampling and analysis for environmental monitoring services will be performed either by the Owner or by its contractor. In the following sections, brief descriptions are provided of the specific monitoring procedures that are required by COMAR or relevant permit conditions.

3.4.2 Groundwater Monitoring

Groundwater will be monitored throughout the post-closure care period, as specified in the most recent Refuse Disposal Permit and MDE approved Groundwater and Surface Water Monitoring Plan. The site-specific groundwater monitoring requirements will be reviewed periodically during the post-closure period. In addition:

- all monitoring wells will be maintained and protected; and
- abandonment and replacement of monitoring wells, if necessary, will be performed in accordance with the provisions of COMAR 26.04.04. Abandonment or replacement of a monitoring well will only be conducted if approved by MDE.

3.4.3 Stormwater Monitoring

Stormwater will be monitored to evaluate compliance with the requirements of the National Pollution Discharge Elimination System (NPDES) Stormwater Discharge Permit (12-SW) for the site and with specific permit conditions.

3.4.4 Leachate Monitoring

Leachate will be monitored during the post-closure period. The specific post-closure leachate monitoring procedures are described below.

- Rate and quantity of leachate flow will be measured to estimate the rate of filling of the leachate storage pond.
- If required by the WWTF, sampling of the leachate will be performed at the required frequency.
• If the quantity and/or quality of leachate is such that leachate management can be modified, a leachate monitoring plan will be submitted to MDE for review and approval. Such a plan will include the sampling locations, frequency and analytical requirements as well as quality control and quality assurance procedures.

3.5 Post-Closure Use

The Lot 15 Landfill will be used in the future for idle grassed land. The proposed post-closure use of the property will not disturb the integrity of the final cover, liner, or any components of the containment system and the function of the monitoring systems of the landfill unless approved by MDE. Before any such disturbances occur, the Owner must demonstrate that these disturbances will not increase the potential threat to human health or the environment. The demonstration must be certified by a qualified professional engineer, and notification shall be provided to MDE that the demonstration has been placed in the operating record and on the Owner’s (or operator’s) publically accessible Internet site.

3.6 Duration of Post-Closure Care

Post-closure care will be provided in accordance with or in exceedance of the requirements of COMAR 26.04.07.22, 40 CFR 257.104, and relevant permit conditions. The requirements of 40 CFR 257.104 regarding the duration of post-closure care include the following:

• The Owner (or operator) of the unit must conduct post-closure care for 30 years; and

• If at the end of the post-closure care period the Owner (or operator) of the unit is operating under assessment monitoring (in accordance with 40 CFR 257.95), the Owner (or operator) must continue to conduct post-closure care until the Owner (or operator) returns to detection monitoring (in accordance with 40 CFR 257.94).

Additionally, according to the requirements of COMAR 26.04.07.22 and relevant permit conditions, MDE may extend the post-closure care period if it determines that an extended period is necessary to protect human health and the environment prior to the end of post-closure care. The following performance-based approach will be applied to the duration of post-closure care at the Lot 15 Landfill. In general, this will consist of implementing the following approach.
• If changes are made to the post-closure care plan, then a demonstration will be made to MDE that the changes are reasonable based on the available information and the evaluations. No changes in post-closure care will be made before MDE formally approves such changes to this Closure and Post-Closure Care Plan and the permit for the Lot 15 Landfill. If the outcome of the evaluation is inconclusive (e.g., no change to the post-closure care plan is indicated by the data and evaluations), then post-closure care will continue as required in the post-closure care plan.

• Additional evaluations of the need for continued post-closure care may be performed when additional data exist that could result in a different outcome from the evaluation.

• A notification of completion of post-closure care will be prepared no later than 60 days following the completion of the post-closure care period and placed in the facility’s operating record. The notification will include a certification by a Maryland licensed professional engineer indicating that post-closure care has been completed in accordance with applicable requirements.

3.7 Facility Contact

The Lot 15 Landfill facility contact will be determined at the time of closure and provided to MDE. At this time, the landfill facility contact during post-closure will be the Site Manager. The contact information of the Site Manager at the time of completing this Plan is included below:

• Owner: Raven Power
• Contact Name: Mr. Brian Hoyt
• Contact Title: Environmental Manager
• Address: 1005 Brandon Shores Road, Suite 100, Baltimore, Maryland 21226
• Telephone: 410.787.6431
• Email: bhoyt@raven-power.com

3.8 Reporting and Record Keeping

The Owner (or operator) will comply with the post-closure recordkeeping requirements specified in 40 CFR 257.105(i). Additionally, in accordance with COMAR 26.04.07.22(D), the results of inspections at the Lot 15 landfill shall be recorded and
reported to MDE within 60 days of the inspection. The landfill components to be inspected during post-closure and their corresponding frequencies are listed in Table 1.
4. REQUIRED SUBMITTALS AND NOTIFICATIONS

The Owner (or its operator) will make several submittals and notifications to MDE to describe the owner’s intentions for closure and post-closure care. Those submittals and notifications are summarized below.

- This Plan has been prepared as required by COMAR 26.04.07.21, COMAR 26.04.07.22, 40 CFR 257.102, and 40 CFR 257.104. This Plan has been certified by a professional engineer that it meets the requirements of the CCR Rule.

- Written notification of the Owner’s intent to close the Lot 15 Landfill will be provided to MDE at least 180 days before the date of anticipated final receipt of CCRs.

- When the Owner submits its notification of intent to close the landfill, if necessary, a revised closure schedule and a revised Closure and Post-Closure Plan will also be submitted to MDE. Once the revised plan has been approved by MDE, the Closure and Post-Closure Plan will be executed as described in the terms of the permit. The Owner will not commence closure of Lot 15 Landfill until the revised plan is approved by MDE.

- Within 30 days of completion of closure activities, a certification or notification of closure will be provided to MDE with the final report of construction quality assurance for the closure construction event and placed in the facilities operating record. The certification will state that the closure was completed in conformance with the requirements of this Plan and will be signed by a Maryland licensed professional engineer.

- Following closure, the Owner (or operator) will record a notation on the deed of the property to notify any potential purchaser of the property that the land has been used for CCR disposal and the Site use is restricted under the post-closure care requirements specified in this Plan. Within 30 days of recording, the Owner (or operator) will prepare a notification that the deed notation has been recorded and place the notification in the operating record.

- Amendments or revisions to this Plan will be carried out in accordance with the requirements of 40 CFR 257.102(b)(3) and 40 CFR 257.104(d)(3).

- In accordance with COMAR 26.04.07.22(D), the results of post-closure care inspections at the Lot 15 landfill will be recorded and reported to MDE within 60 days of the inspection.
• The Owner (or operator) will comply with the closure and post-closure recordkeeping requirements specified in 40 CFR 257.105(i), the notification requirements specified in 40 CFR 257.106(i), and the Internet requirements specified in 40 CFR 257.107(i).

• A notification of completion of post-closure care will be prepared no later than 60 days following the completion of the post-closure care period and placed in the facility’s operating record. The notification will include a certification by a Maryland licensed professional engineer indicating that post-closure care has been completed in accordance with applicable requirements.
5. FINANCIAL ASSURANCE

Fort Armistead Road – Lot 15 Landfill, LLC will exceed the requirements of the Annotated Code of Maryland Regulations, § 9-211, by providing a bond payable to the City of Baltimore in the amount of $1,500,000 for years 1-5 of post closure, $1,000,000 for years 6-10 and $500,000 for years 11-15 of the post-closure period. The bond shall be paid by 31 December of each year.
6. REFERENCES

TABLES
### TABLE 1

**POST-CLOSURE MAINTENANCE INSPECTION SCHEDULE**

**Lot 15 Landfill**  
Baltimore, Maryland

<table>
<thead>
<tr>
<th>Item</th>
<th>Inspection Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access Roads</td>
<td>Semi-annually</td>
</tr>
<tr>
<td>Landscaping</td>
<td>Semi-annually and after major storm events¹</td>
</tr>
<tr>
<td>Stormwater Management System</td>
<td>Semi-annually and after major storm events¹</td>
</tr>
<tr>
<td>Equipment</td>
<td>Monthly (during use)²</td>
</tr>
<tr>
<td>Leachate Collection System</td>
<td>Monthly (during use)²</td>
</tr>
<tr>
<td>Leachate Removal and Transmission</td>
<td>Monthly (during use)²</td>
</tr>
<tr>
<td>System</td>
<td></td>
</tr>
<tr>
<td>Environmental Monitoring Systems</td>
<td>Semi-annually (during monitoring events)</td>
</tr>
<tr>
<td>Security Fence and Signs</td>
<td>Semi-annually</td>
</tr>
<tr>
<td>Leachate Storage Area</td>
<td>Monthly (during use)²</td>
</tr>
<tr>
<td>Buildings</td>
<td>Annually</td>
</tr>
</tbody>
</table>

**Notes:**  
1. A “major storm event” is defined as a 24-hour, 10-year return frequency storm.  
2. Inspection frequency may be revised to take into account the amount of leachate pumped from the sumps to the storage area.
FIGURES