

CCR Closure Plan



Petersburg Generating Station
Restricted Waste Landfill Type III
(Permit No. FP 63-02)
Pike County, IN

PREPARED FOR:

AES Indiana

PREPARED BY:

AECOM

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Revision 0

July 31, 2024

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1.0 Introduction

Under 40 C.F.R. § 257.102(b), the owner or operator of a CCR unit must prepare a written closure plan that describes the steps necessary to close the CCR unit consistent with recognized and generally accepted good engineering practices at any point during the active life of the CCR units. The Closure Plan outlined below is provided to meet this requirement.

1.1 Purpose

The Closure Plan for AES Indiana (AESI) Petersburg Generating Station Restricted Waste Site Type III (Petersburg Landfill) is intended to satisfy requirements set forth by the CCR Rule. In accordance with 40 C.F.R. § 102(d)(1), the landfill will be closed in a manner that will:

- (i) Control, minimize, or eliminate, to the maximum extent feasible, post-closure infiltration of liquid into the waste and releases of CCR, leachate, or contaminated run-off to the ground or surface waters or to the atmosphere;
- (ii) Preclude the probability of future impoundment of water, sediment, or slurry;
- (iii) 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;
- (iv) Minimize the need for further maintenance of the CCR unit; and
- (v) Be completed in the shortest amount of time consistent with recognized and generally accepted good engineering practices.

1.2 Facility and Site Description

The AESI Petersburg Generating Station is located about four (4) miles north of the City of Petersburg in Pike County, Indiana west of State Road 57. The permitted Solid Waste Boundary of the Petersburg Landfill encompassed a total area of approximately 123.7 acres and was landfill operated under IDEM Permit Number 63-2. The original 80.1-acres of the landfill's Solid Waste Boundary were permitted by the Indiana Department of Environmental Management (IDEM) in 1982, while the remaining 43.6-acres was permitted as an expansion to the landfill in 1996. The Petersburg Landfill is not currently operating, and no waste has been placed in the landfill since 2009. As of 2023, the 43.6-acre landfill expansion had not been constructed and AESI had no plans to operate within either the original footprint or within the proposed expansion area of the facility in the future. As such, AESI submitted to IDEM a minor permit modification request to eliminate the 43.6-acre landfill expansion area and to re-establish the original 80.1-acre permitted landfill footprint. IDEM approved the permit modification request and renewed the landfill permit on April 23, 2024. This Closure Plan is applicable to the currently permitted 80.1-acre landfill footprint.

1.3 Landfill Name

The CCR unit name is AESI Petersburg Generating Station Restricted Waste Site (RWS) Type III.

2.0 Planned Closure Activities

The Petersburg Landfill will be closed in accordance with 40 C.F.R. § 257.102(d). In general, the perimeter slopes of the landfill will be graded with a maximum 3H:1V slope while the top of the landfill will have a typical slope of no less than 2 percent. After grading work is complete, CCR material will be covered with materials specified in the Final Cover System. Proposed closure activities are summarized below:

- Survey, site grading and subgrade preparation;
- Final cover system installation;
- Construction of stormwater management features;
- Construction of permanent access roads; and
- Certification of Closure.

Upon final closure of the landfill a notification of closure will be prepared in accordance with C.F.R. § 257.102(h).

3.0 Description of the Landfill Final Cover System

Closure of the landfill will be accomplished by leaving the CCR in place. The final cover system will consist of the following components, from bottom to top:

- Recompact subgrade;
- Structured geomembrane;
- Engineered synthetic turf; and
- Specified aggregate infill.

3.1 Recompacted Subgrade

The subgrade will consist of the existing landfill final cover soils. Existing vegetation and topsoil will be removed from the existing landfill cover. The underlying soils will be regraded and recompact to achieve a consistent subgrade subsurface. The geosynthetics will be deployed overtop this recompact subgrade surface.

3.2 Structured Geomembrane

The structured geomembrane layer will consist of either 40mil or 50mil LLDPE geomembrane and serves as the low permeability layer to minimize infiltration, exceeding the criteria of 40 C.F.R. § 257.102(d)(3)(i)(A). The bottom of the structured geomembrane is textured or spiked to increase the friction coefficient between the geomembrane and the underlying subgrade soils. The top of the structure geomembrane includes studs to facilitate drainage between the geomembrane and the overlying synthetic turf.

3.3 Engineered Synthetic Turf Layer

A layer of engineered synthetic turf will be installed over the structured geomembrane to act as a protective cover. The engineered synthetic turf also works as a grid to maintain the overlying specified aggregate infill in-place to resist erosion.

3.4 Specified Aggregate Infill

An approximately ½- to ¾-inch layer of specified sand/aggregate will be installed over the engineered synthetic turf layer. The specified aggregate infill protects the underlying synthetic turf and geomembrane, as well as provides ballast to the closure system components. In areas where concentrated stormwater flows are expected, the specified aggregate infill material will be modified to include a ¾- to 1-inch layer of cementitious binder infill (for example in stormwater down-chutes). Landfill perimeter channels will be armored with a layer of riprap overtop the engineered synthetic turf layer.

Construction quality assurance measures will be completed to confirm that the final cover system is constructed as designed. At the time final closure is completed, a qualified Professional Engineer will certify that the final cover system meets the requirements of 40 C.F.R. § 257.102(d)(3).

4.0 Estimated Maximum Inventory of CCR

According to the previous Permit Renewal for the Petersburg Landfill, 16,300,000 cubic yards is the total fill volume of the entire landfill permitted airspace. This is the estimated maximum inventory of CCR ever on-site over the active life of the CCR unit.

5.0 Estimated Surface Area of Final Cover

The estimated surface area of final cover is 80.1-acres, which is equivalent to the original permitted landfill footprint.

6.0 Schedule for Closure Activities

The estimated schedule for completing the activities necessary to satisfy the closure criteria outlined in 40 C.F.R. § 257.102 is outlined in the table below:

Activity	Estimated Timeframe
Survey, Site Grading and Subgrade Preparation	Months 1 through 4
Final Cover System Installation	Months 3 through 8
Construction of Stormwater Management Features	Months 8 through 9
Construction of Permanent Access Roads	Month 9
Certification of Closure	Months 10 through 11

AESI placed a Notification of Intent to Close the Petersburg Landfill, in accordance with 40 C.F.R. § 257.102(g), in the facility's operating record on October 12, 2023. As such, commencement of closure activities occurred on October 12, 2023.

7.0 Completion of Closure Activities

In accordance with 40 C.F.R. § 257.102(f)(1), closure of the CCR unit must be completed within six months of commencing closure activities (October 12, 2023), in this case, by April 12, 2024, barring any necessary and allowed extensions under 40 C.F.R. § 257.102(f)(2)(i).

AESI placed a Notice of Extension of the Closure Timeframe for the Petersburg Landfill, in accordance with 40 C.F.R. § 257.102(f)(2)(i), in the facility's operating record on April 12, 2024.

Upon completion, the owner or operator of the Petersburg Landfill will obtain a certification from a qualified Professional Engineer verifying that closure has been completed in accordance with the closure plan and the requirements of 40 C.F.R. § 257.102.

8.0 Amendments to Closure Plan

In accordance with 40 C.F.R. § 257.102(b)(3), AESI may amend the Closure Plan developed pursuant to 40 C.F.R. § 257.102(b)(1) at any time.

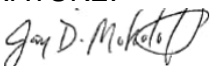
AESI will amend the written closure plan whenever:

- There is a change in the operation of the CCR unit that would substantially affect the written closure plan in effect; or
- Before or after closure activities have commenced, unanticipated events necessitate a revision of the written closure plan.

9.0 Certification

I, Jay D. Mokotoff, being a registered Professional Engineer, in accordance with the Indiana Professional Engineer's Registration, do hereby certify to the best of my knowledge, information, and belief, that the information contained in this written Closure Plan was developed in general accordance with the requirements of 40 C.F.R. § 257.102(b) and has been prepared in accordance with recognized and generally accepted good engineering practices.

SIGNATURE:



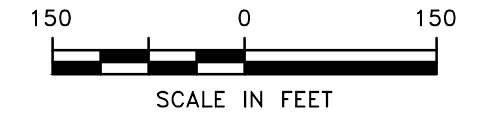
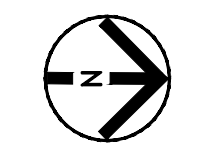
Jay D. Mokotoff, P.E.

DATE:

7/31/2024



DRAWINGS



LEGEND

- LOW** **LOW** LANDFILL WASTE BOUNDARY
- EXISTING DITCH
- LIMITS OF WATER
- 100-YR** **100-YR** 100 YR FLOODPLAIN
- EXISTING OVERHEAD TRANSMISSION LINES
- EXISTING UNDERGROUND ELECTRIC LINES
- W.E.** WATER SURFACE ELEVATION
- RAILROAD
- EXISTING PAVED ROADS
- EXISTING UNPAVED ROADS
- EXISTING TREE OR BUSH LINE
- EXISTING PIPES
- OBSCURED AREA
- GUARDRAIL
- FENCE
- EX. RIPRAP
- WET AREA
- FINAL COVER EXTENTS
- INTERMEDIATE COVER EXTENTS
- BENCHMARK
- STORMWATER STRUCTURE

NOTES:

1. FINAL COVER REFERS TO THE COVER SOILS INSTALLED OVER THE WEST PORTION OF THE LANDFILL TO THE EXTENTS INDICATED. SOILS CONSIST OF LOAM, FINE SANDY LOAM, LOAMY SAND, AND SANDY SOILS. INSTALLED TO A MINIMUM THICKNESS OF 2.5 FEET, AS DOCUMENTED IN THE PARTIAL CLOSURE CERTIFICATION FOR THE PETERSBURG TYPE III LANDFILL, DATED OCTOBER 14, 2015 AND APPROVED BY IDEM ON DECEMBER 23, 2015.
2. INTERMEDIATE COVER REFERS TO THE COVER SOILS INSTALLED OVER THE EAST PORTION OF THE LANDFILL TO THE EXTENTS INDICATED. SOILS CONSIST OF LEAN CLAY, SILTY CLAY, CLAYEY SAND, AND SILT, WITH THICKNESS VARYING FROM 0.5 FEET TO 3.2 FEET. SOIL TYPES AND THICKNESSES WERE INVESTIGATED AS DOCUMENTED WITHIN AECOM'S GEOTECHNICAL DATA REPORT, DATED DECEMBER 8, 2023.



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NOT FOR CONSTRUCTION

REGISTRATION

ISSUE/REVISION

I/R	DATE	DESCRIPTION

AECOM PROJECT NO:	60704510
DRAWN BY:	JET
DESIGNED BY:	DMB
CHECKED BY:	BS / JDM
PLOT DATE:	7/16/2024
SCALE:	NOTED
AUTOCAD VER:	2018

PROJECT NUMBER
 60704510

SHEET TITLE
 SITE VICINITY MAP - AERIAL

SHEET NUMBER
 DRAWING 1

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