INDIANA-KENTUCKY ELECTRIC CORPORATION
3932 U. S. Route 23
P. O. Box 468
Piketon, Ohio 45661
740-289-7200

WRITER'S DIRECT DIAL NO:
(740) 941-6770

January 28, 2026

DOCUMENT
ELECTRONICALLY SUBMITTED

Mr. Clint Woods
Commissioner
Indiana Department of Environmental Management
100 N. Senate Avenue
Indianapolis, IN 46204-2251
CCR Rule Compliance
Clifty Creek Publicly Accessible CCR Website

Dear Mr. Woods,

Re: Indiana-Kentucky Electric Corporation - Clifty Creek Station
West Boiler Slag Pond – Notification of Completion of Retrofit

Pursuant to 40 CFR 257.106(j)(6), the Indiana-Kentucky Electric Corporation (IKEC) is providing notification of completion of retrofit activities for a 3.4-acre footprint within the closure-by-removal footprint of the West Boiler Slag Pond. In accordance with 40 CFR 257.102(k), 40 CFR 72(d), 40 CFR 257.72(a & c), and 40 CFR 70(c), certifications were secured by a qualified professional engineer and placed in the facility's operating record, as well as posted on the facility's publicly accessible CCR information website. Please see attached, all pertinent retrofit documents below.

If you have questions or require additional information, I can be reached at (740) 941-6770.

Sincerely,

Zachary S. Hammond

Zachary S. Hammond
Environmental Specialist I

ZSH:gsc

Attachments

COMPANY CORRESPONDENCE

Subject: Clifty Creek Station – Boiler Slag Retrofit **Date:** 9/5/2025

To: FILE – CCR Operating Record **From:** Zachary Hammond

In accordance with the Indiana-Kentucky Electric Corporation's (IKEC's) notification of intent to close the West Boiler Slag Pond (WBSP), dated October 13, 2023, which is available on IKEC's publicly accessible internet site, the Clifty Creek Station is continuing to execute the closure by removal of the WBSP. However, in order to support plant operation, IKEC now intends to retrofit a two- to three-acre portion of the WBSP. This portion will have CCR, contaminated soils, and sediment from that area removed under the supervision and direction of a qualified professional engineer to ensure closure by removal standards found at 257.102(c) are met, pursuant to 257.102(k)(1). Once closure by removal has been completed and certified for the area, a liner meeting the alternative composite liner requirements of 257.72(c) will be installed, creating a new lined surface impoundment. The retrofit unit will utilize the existing groundwater monitoring system at the WBSP. The retrofit will be within the confines of the WBSP, which has met location restrictions outlined in 257.60 through 257.64. IKEC is in the process of devising a schedule for retrofit construction and a written retrofit plan at this time.

Stantec Consulting Services Inc.
10200 Alliance Road, Suite 300
Cincinnati OH 45242-4754

September 15, 2025

Indiana-Kentucky Electric Corporation
3932 U.S. Route 23
P.O. Box 468
Piketon, Ohio 45661

RE: Retrofit Plan
West Boiler Slag Pond (CCR Unit)
EPA Final Coal Combustion Residuals (CCR) Rule
Clifty Creek Station
Madison, Jefferson County, Indiana

1.0 PURPOSE

As described in 40 CFR §257.102(k), an owner or operator of a CCR unit is required to demonstrate that certain measures will be adopted to retrofit a CCR unit. This letter documents Stantec's certification of the Retrofit Plan for Indiana-Kentucky Electric Corporation (IKEC) Clifty Creek Station's West Boiler Slag Pond complies with requirements in the EPA Final CCR Rule 40 CFR §257.102(k)(2)(i).

2.0 SUMMARY OF FINDINGS

The attached plan documents the retrofit measures that meet the requirements specified in 40 CFR §257.102(k).

3.0 QUALIFIED PROFESSIONAL ENGINEER CERTIFICATION

I, Jacqueline S. Harmon, being a Professional Engineer in good standing in the State of Indiana, do hereby certify, to the best of my knowledge, information, and belief:

1. that the information contained in this certification is prepared in accordance with the accepted practice of engineering;
2. that the information contained herein is accurate as of the date of the attached plan and the date of my signature below;
3. that the Retrofit Plan for the IKEC Clifty Creek Station's CCR Unit meets the requirements described in 40 CFR §257.102(k)(2)(i).

Reference: **Retrofit Plan**

SIGNATURE Jacqueline S Harmon DATE 9/15/2025

ADDRESS: Stantec Consulting Services Inc.
10200 Alliance Road, Suite 300
Cincinnati, OH 45242

TELEPHONE: (513) 842-8200

ATTACHMENT: Retrofit Plan

Retrofit Plan

West Boiler Slag Pond
Clifty Creek Station

Prepared for:
Indiana-Kentucky Electric Corporation

Prepared by:
Stantec Consulting Services Inc.

Date:
September 15, 2025

Project/File:
173411098

Stantec Consulting Services Inc.

Table of Contents

1 Introduction

This EPA Final Coal Combustion Residuals (CCR) Rule retrofit plan contains the current plan and is subject to change. This document describes the CCR retrofit activities at Indiana-Kentucky Electric Corporation's (IKEC's) Clifty Creek Station to ensure that West Boiler Slag Pond (WBSP) will be retrofitted in accordance with the CCR requirements of 40 CFR §257.101(a) and §257.102(k). This retrofit basin will exist within the WBSP, an area where CCR has been historically managed and stored and is monitored by a certified groundwater monitoring well system. The remainder of the WBSP will be closed in accordance with its current closure and post-closure plan (Stantec, September 2023).

2 Written Retrofit Plan - 40 CFR §257.102(k)(2)

40 CFR 257.102(k)(2). *Written retrofit plan—(i) Content of the plan. The owner or operator must prepare a written retrofit plan that describes the steps necessary to retrofit the CCR unit consistent with recognized and generally accepted good engineering practices. The written retrofit plan must include, at a minimum, all of the following information:*

(A) A narrative description of the specific measures that will be taken to retrofit the CCR unit in accordance with this section.

(B) A description of the procedures to remove all CCR and contaminated soils and sediments from the CCR unit.

(C) An estimate of the maximum amount of CCR that will be removed as part of the retrofit operation.

(D) An estimate of the largest area of the CCR unit that will be affected by the retrofit operation.

(E) A schedule for completing all activities necessary to satisfy the retrofit criteria in this section, including an estimate of the year in which retrofit activities of the CCR unit will be completed.

2.1 Retrofit Narrative - 40 CFR §257.102(k)(2)(i)(A and B)

Historically, the WBSP has functioned as a settling facility, managing process flows from the station and over 500 acres of stormwater received from watershed acreage beyond the IKEC property. The WBSP is being closed by removal in accordance with the requirements found in the EPA CCR Rule. When possible, beneficial reuse of the CCRs is planned.

Significant permitting and construction steps were taken to prepare for closure of the WBSP:

- Permitting was completed allowing diversion of stormwater through two existing outfalls and one new outfall.
- Design and construction of a boiler slag handling system (BSHS) to divert process flows.

- Design and construction of a low-volume waste treatment system (LVWTS) consisting of two lined ponds to manage process flows from the station, leachate from the CCR landfill, and stormwater within the WBSP during closure activities.
- Design and construction of stormwater drainage improvements towards the existing outfalls, reducing stormwater flows to the WBSP to those flows that fall within the pond and the immediate vicinity.

IKEC ceased placing CCR and non-CCR wastestreams into the WBSP in October 2023 under the requirements of §257.103(f)(1)(vi)(A), transitioning the WBSP to an inactive unlined CCR surface impoundment as determined under 40 CFR §257.71(a). Subsequently, IKEC issued a notice of intent to close as required under §257.102(g). Approximately one acre of the WBSP will be closed in accordance with §257.102(d) by leaving the CCR in place. The remainder will be closed by removal in accordance with §257.102(c).

At any time after the initiation of closure under §257.101(a)(4), IKEC may elect to initiate a retrofit of the CCR unit in accordance with the requirements of §257.102(k). See §257.101(a)(4). In September 2025, IKEC elected to retrofit approximately 2.5 acres of the WBSP within the closure-by-removal footprint as a process basin to manage bottom ash from the station. To retrofit a process basin within the WBSP under 40 CFR §257.102(k), IKEC will remove CCR-contaminated soils and sediments from the CCR surface impoundment and comply with the requirements in §257.72 (liner design criteria).

The WBSP footprint is being dried, stabilized, and dewatered. Within the retrofit footprint, CCRs will be removed based on visual verification with an additional six inches of over-excavation to facilitate CCR removal, while maintaining a five-foot isolation above the uppermost aquifer. Any CCR material not used for offsite beneficial use will be sent to the on-site CCR landfill. Stormwater drainage improvements will be implemented during final closure grading to manage flows through an NPDES-permitted outfall.

Structural soil fill will be placed in controlled, compacted lifts to create the new basin's surrounding dike. The basin interior will include installation of an alternative composite liner that meets §257.70(c)(1). From bottom to top, the liner cross section will be:

- Prepared subgrade,
- Geosynthetic clay liner,
- 30-mil flexible linear low-density polyethylene (LLDPE),
- A separation geotextile, and
- A granular marker layer.

2.2 Estimate of Maximum Amount of CCR to be Removed - 40 CFR §257.102(k)(2)(i)(C)

The CCR thickness within the retrofit area ranges from zero to five feet. An estimated 10,100 cubic yards of CCRs remain for removal in the proposed 2.5-acre footprint. An additional approximately 2,000 cubic yards of soil will be removed to meet closure by removal criteria as defined in the WBSP closure plan; however, the total volume of soil may increase in order to appropriately removed contact soils.

2.3 Estimate of Largest Area of WBSP Affected by Retrofit - 40 CFR §257.102(k)(2)(i)(D)

The lined retrofit will be 2.5 acres for the basin and lined laydown area. Access roads and erosion and sediment controls measures surrounding the retrofit will be within the closure-by-removal footprint and considered part of the grading for closure activities.

2.4 Schedule - 40 CFR §257.102(k)(2)(i)(E), §257.102(k)(2)(ii)

No later than the date the owner or operator initiates the retrofit of a CCR unit, the owner or operator must prepare a notification of intent to retrofit a CCR unit (§257.105(k)(5)). The owner or operator has completed the notification when it has been placed in the facility's operating record as required by §257.105(j)(5).

No later than 60 days prior to date of initiating retrofit activities, IKEC must prepare the initial written retrofit plan consistent with the requirements specified in § 257.102(k)(2). For purposes of subpart 257, initiation of retrofit activities has commenced if IKEC has ceased placing waste in the unit and completes any of the following actions or activities:

- Taken any steps necessary to implement the written retrofit plan,
- Submitted a completed application for any required state or agency permit or permit modification, or
- Taken any steps necessary to comply with any state or other agency standards that are a prerequisite, or are otherwise applicable, to initiating or completing the retrofit of a CCR unit.

IKEC has completed the written retrofit plan when the plan, including the certification required by §257.102(k)(2)(iv), has been placed in the facility's operating record as required by §257.105(j)(1).

Construction of the lined retrofit basin will be completed by December 2025.

2.5 Amendment of the Retrofit Plan - 40 CFR §257.102(k)(2)(iii)

IKEC may amend the initial or any subsequent written retrofit plan at any time. An amendment is required when:

- There is a change in the operation of the WBSP would substantially affect the written retrofit plan in effect or
- If before or after retrofit activities have commenced, unanticipated events necessitate a revision of the written retrofit plan.

IKEC must amend the retrofit plan at least 60 days prior to a planned change in the operation of the facility or CCR unit, or no later than 60 days after an unanticipated event requires the revision of an existing written retrofit plan. If a written retrofit plan is revised after retrofit activities have commenced for a CCR unit, the owner or operator must amend the current retrofit plan no later than 30 days following the triggering event.

A written certification from a qualified professional engineer is provided noting that the activities outlined in the written retrofit plan, including any amendment of the plan, meet the requirements of §257.102. Upon completion, a written certification from a qualified professional engineer will be provided noting that the retrofit activities have been completed in accordance with the retrofit plan specified in paragraph §257.102(k)(2) and the requirements of §257.102.

2.6 Completion of the Retrofit Plan- 40 CFR §257.102(k)(6)

Retrofit activities within the WBSP will be completed within the same time frames and procedures specified for the closure of a CCR surface impoundment in §257.102(f) or, where applicable, §257.103. Closure by removal activities for the WBSP are scheduled for completion by October 2027.

Within 30 days of completing the retrofit activities specified in §257.102(k)(1), IKEC will prepare a notification of completion of retrofit activities. The notification will include certification from a qualified professional engineer as required by §257.102(k)(4). IKEC will complete the notification when it has been placed in the Clifty Creek Station's operating record as required by §257.105(j)(6).

At any time after the initiation of the WBSP retrofit, IKEC may cease the retrofit and initiate closure of the CCR unit in accordance with the requirements of §257.102.

IKEC will comply with the retrofit recordkeeping requirements specified in §257.105(j), the retrofit notification requirements specified in §257.106(j), and the retrofit internet requirements specified in §257.107(j).

With every community, we redefine what's possible.

Stantec is a global leader in sustainable engineering, architecture, and environmental consulting. The diverse perspectives of our partners and interested parties drive us to think beyond what's previously been done on critical issues like climate change, digital transformation, and future-proofing our cities and infrastructure. We innovate at the intersection of community, creativity, and client relationships to advance communities everywhere, so that together we can redefine what's possible.

Stantec Consulting Services Inc.
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Stantec Consulting Services Inc.
10200 Alliance Road Suite 300, Cincinnati OH 45242-4754

November 3, 2025
File: 173410748
Revision 0

Indiana-Kentucky Electric Corporation
3932 U.S. Route 23
P.O. Box 468
Piketon, Ohio 45661

RE: Liner Design Criteria for New CCR Surface Impoundment
West Boiler Slag Pond - Retrofit (CCR Unit)
EPA CCR Rule: 40 CFR §257.72(a and c) and §257.70(c)
IKEC Clifty Creek Station
Madison, Jefferson County, Indiana

1.0 PURPOSE

This letter documents Stantec's certification of the alternative composite liner design for the retrofit area (CCR Unit) within the Clifty Creek Station's West Boiler Slag Pond. Based on this assessment, the CCR Unit is in compliance with the alternative composite liner design requirements in the EPA Final CCR Rule at 40 CFR 257.70(c)(1).

2.0 LINER DESIGN

As described in 40 CFR 257.102(k), retrofit of an existing CCR surface impoundment must comply with the requirements in §257.72. Prior to construction of the CCR surface impoundment, certification must be provided that the design of the alternative composite liner meets the requirements of §257.70(c).

Under §257.70(c), an alternative composite liner must consist of two components; the upper component consisting of, at a minimum, a 30-mil GM, and a lower component, that is not a geomembrane with a liquid flow rate no greater than the liquid flow rate of two feet of compacted soil with a hydraulic conductivity of no more that $1x10^{-7}$ centimeter per second (cm/sec). The hydraulic conductivity of any alternative to the two feet of compacted soil must be determined using recognized and generally accepted methods. The liquid flow rate comparison must be made using Equation 1 of §257.70(c), which is derived from Darcy's Law for gravity flow through porous media.

The alternative composite liner must meet the requirements specified in §257.70(b). A composite liner must consist of two components; the upper component consisting of, at a minimum, a 30-mil geomembrane liner (GM), and the lower component consisting of at least a two-foot layer of compacted soil with a hydraulic conductivity of no more than 1×10^{-7} cm/sec. GM components consisting of high density polyethylene (HDPE) must be at least 60-mil thick. The GM or upper liner component must be installed in direct and uniform contact with the compacted soil or lower liner component. The composite liner must be:

> (1) Constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure due to pressure gradients (including static head and external hydrogeologic forces), physical contact with the CCR or leachate to which they are exposed, climatic conditions, the stress of installation, and the stress of daily operation;

RE: Liner Design Criteria for New CCR Surface Impoundment
West Boiler Slag Pond - Retrofit (CCR Unit)

(2) Constructed of materials that provide appropriate shear resistance of the upper and lower component interface to prevent sliding of the upper component including on slopes;

(3) Placed upon a foundation or base capable of providing support to the liner and resistance to pressure gradients above and below the liner to prevent failure of the liner due to settlement, compression, or uplift; and

(4) Installed to cover all surrounding earth likely to be in contact with the CCR or leachate.

3.0 SUMMARY OF FINDINGS

The alternative composite liner design for the retrofit area within the Clifty Creek Station's West Boiler Slag Pond includes:

Upper component: 30-mil LLDPE geomembrane. This complies with §257.70(c)(1).

Lower component: a polymer-enhanced geosynthetic clay liner (GCL) tested for leachate compatibility.

The specified GCL was tested in accordance with ASTM D6766 using site-specific leachate. The measured hydraulic conductivity was 1.1 x 10^{-9} cm/sec at a testing duration of 1,960.3 hours. The following table presents the calculation of flow rate comparison.

	Compacted Soil Liner	GCL
Hydraulic Head on Liner (Not Considering GM) (h)	5 feet	5 feet
Compacted Soil/GCL Bentonite Thickness (t)	2 feet	0.3 inch (0.025 feet)
Hydraulic Conductivity of Liner (k)	$1x10^{-7}$ cm/sec	$1.1x10^{-9}$ cm/sec
Liquid Flow Rate per Unit Area (q = k x ((h/t)+1)	$3.5x10^{-7}$ cm/sec	$2.2x10^{-7}$ cm/sec

Per the preceding table, the liquid flow rate through the GCL specified for the lower component of the alternative composite liner for the retrofit area of the West Boiler Slag Pond is less than the liquid flow rate through two feet of compacted soil with a hydraulic conductivity of $1x10^{-7}$ cm/sec. This complies with §257.70(c)(1).

4.0 QUALIFIED PROFESSIONAL ENGINEER CERTIFICATION

I, Jacqueline S. Harmon, being a Professional Engineer in good standing in the State of Indiana, do hereby certify, to the best of my knowledge, information, and belief:

1. that the information contained in this certification is prepared in accordance with the accepted practice of engineering;

2. that the information contained herein is accurate as of the date of my signature below; and

3. that, pursuant to 40 CFR 257.102(k) and 40 CFR 257.72(c), the alternative composite liner design for the retrofit of Clifty Creek Station's West Boiler Slag Pond meets the requirements specified in 40 CFR 257.70(c).

RE: Liner Design Criteria for New CCR Surface Impoundment
West Boiler Slag Pond - Retrofit (CCR Unit)

SIGNATURE _____ DATE 11/3/2025

Jacqueline S. Harmon, PE
Principal

ADDRESS: Stantec Consulting Services Inc.
10200 Alliance Road, Suite 300
Cincinnati, Ohio 45242

TELEPHONE: (513) 842-8200

JACQUELINE S. HARMON
REGISTERED
No. 10911138
STATE OF
INDIANA
PROFESSIONAL ENGINEER
11/3/2025

Stantec Consulting Services Inc.
10200 Alliance Road Suite 300, Cincinnati OH 45242-4754

January 20, 2026
File: 173410748
Revision 0

Indiana-Kentucky Electric Corporation
3932 U.S. Route 23
P.O. Box 468
Piketon, Ohio 45661

RE: Completion of Retrofit Certification
West Boiler Slag Pond - Retrofit (CCR Unit)
EPA CCR Rule: 40 CFR §257.102(k)(4)
IKEC Clifty Creek Station
Madison, Jefferson County, Indiana

1.0 PURPOSE

Indiana-Kentucky Electric Corporation (IKEC) has retrofitted 3.4 acres of the Clifty Creek Station's West Boiler Slag Pond (WBSP) as a lined process basin to manage bottom ash from the station. The basin lies within the closure-by-removal footprint of the WBSP. The WBSP's "Retrofit Plan" (Stantec, September 15, 2025) outlined the proposed retrofit activities including CCR removal to meet closure requirements for the WBSP, structural soil fill placement to meet geosynthetics grades, construction of an alternative composite liner system, and stormwater management.

This letter documents Stantec's certification that the retrofit activities have been completed in accordance with the Retrofit Plan (Stantec, September 15, 2025) and requirements defined in 40 CFR §257.102(k).

2.0 SUMMARY OF FINDINGS

As per the Retrofit Plan and the provided construction quality control/quality assurance documentation, CCR and sediments were removed from within the approximately 3.4-acre footprint of the retrofit area based on visual verification plus six inches of overexcavation to meet the WBSP's closure-by-removal standards. Excavated CCR materials were sent to the station's CCR landfill. Stormwater management improvements were implemented throughout retrofit activities to manage flows through an NPDES-permitted outfall.

Structural fill was observed to be placed in controlled, compacted lifts to construct the new process basin's surrounding dike and geosynthetics grades. The alternative composite liner system proposed in the Retrofit Plan was installed in accordance with the WBSP's closure construction documents. A separate certification has been prepared for construction of the liner system as per 40 CFR §257.72(d).

Retrofit activities were completed on January 20, 2026. This is in adherence with the schedule defined in the Retrofit Plan and meets the requirements of 40 CFR §257.102(f) and 40 CFR §257.102(k)(3).

RE: Certification of Retrofit Construction
West Boiler Slag Pond - Retrofit (CCR Unit)

3.0 QUALIFIED PROFESSIONAL ENGINEER CERTIFICATION

I, Jacqueline S. Harmon, being a Professional Engineer in good standing in the State of Indiana, do hereby certify, to the best of my knowledge, information, and belief:

1. that the information contained in this certification is prepared in accordance with the accepted practice of engineering;

2. that the information contained herein is accurate as of the date of my signature below; and

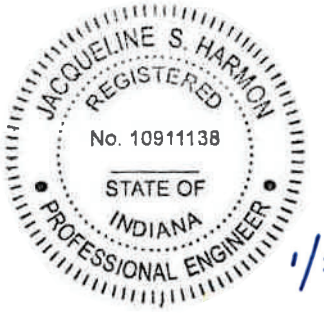
3. that retrofit activities in the WBSP have been completed in accordance with the previously prepared Retrofit Plan (Stantec, September 15, 2025) and requirements defined in 40 CFR §257.102(k).

SIGNATURE _____ DATE 1/20/2026

Jacqueline S. Harmon, PE
Principal

ADDRESS: Stantec Consulting Services Inc.
10200 Alliance Road, Suite 300
Cincinnati, Ohio 45242

TELEPHONE: (513) 842-8200



1/20/2026

Stantec Consulting Services Inc.
10200 Alliance Road Suite 300, Cincinnati OH 45242-4754

January 20, 2026
File: 173411098
Revision 0

Indiana-Kentucky Electric Corporation
3932 U.S. Route 23
P.O. Box 468
Piketon, Ohio 45661

RE: Certification of Liner Construction for New CCR Surface Impoundment
West Boiler Slag Pond - Retrofit (CCR Unit)
EPA CCR Rule: 40 CFR §257.72(d)
IKEC Clifty Creek Station
Madison, Jefferson County, Indiana

1.0 PURPOSE

Indiana-Kentucky Electric Corporation (IKEC) has retrofitted 3.4 acres of the Clifty Creek Station's West Boiler Slag Pond (WBSP) as a lined process basin to manage bottom ash from the station. The basin lies within the closure-by-removal footprint of the WBSP. The WBSP's "Retrofit Plan" (Stantec, September 15, 2025) outlined the proposed retrofit activities including CCR removal to meet closure requirements for the WBSP, structural soil fill placement to meet geosynthetics grades, construction of an alternative composite liner system, and stormwater management.

This letter documents Stantec's certification of the construction of the alternative composite liner for the retrofit area to meet 40 CFR § 257.72(d).

2.0 SUMMARY OF FINDINGS

The alternative composite liner system was constructed as defined in the Retrofit Plan (Stantec, September 15, 2025) and the Certification of Liner Design Criteria (Stantec, January 20, 2026) to meet requirements in 40 CFR §257.102(k) and 40 CFR § 257.70(c)(1).

As part of construction of the basin, areas to be lined were compacted and stabilized to provide an acceptable subgrade for liner construction. Proof rolls were performed across the area to be lined to verify the suitability of the subgrade ahead of liner placement. The installed liner system included (from bottom to top) reinforced geosynthetic clay liner (GCL) and 30-mil linear low-density polyethylene (LLDPE) geomembrane. Manufacturer's specifications are attached. Construction quality control/quality assurance were performed in accordance with the WBSP closure documents. GCL compatibility testing will be added to this certification once achieving termination.

The alternative composite liner system was constructed over the entirety of the basin floor, surrounding dike, and adjacent areas likely to be in contact with CCR. Within the base of the retrofit area, an 8-ounce nonwoven separation geotextile and a granular marker layer were placed.

RE: Certification of Liner Construction for New CCR Surface Impoundment
West Boiler Slag Pond - Retrofit (CCR Unit)

3.0 QUALIFIED PROFESSIONAL ENGINEER CERTIFICATION

I, Jacqueline S. Harmon, being a Professional Engineer in good standing in the State of Indiana, do hereby certify, to the best of my knowledge, information, and belief:

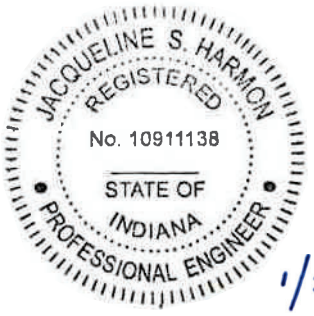
1. that the information contained in this certification is prepared in accordance with the accepted practice of engineering;
2. that the information contained herein is accurate as of the date of my signature below; and
3. that the alternate composite liner system for the retrofit of Clifty Creek Station's WBSP has been constructed in compliance with the requirements specified in 40 CFR §257.70(c).

SIGNATURE _____ DATE 1/20/2026

Jacqueline S. Harmon, PE
Principal

ADDRESS: Stantec Consulting Services Inc.
10200 Alliance Road, Suite 300
Cincinnati, Ohio 45242

TELEPHONE: (513) 842-8200



1/20/2026

SOLMAX

TECHNICAL DATA SHEET

BentoLiner NS Geosynthetic Clay Liner

BentoLiner "NS" is a needlepunched reinforced composite geosynthetic clay liner (GCL) comprised of a uniform layer of granular sodium bentonite encapsulated between a woven and a nonwoven geotextile. The product is intended for moderate to steep slopes and moderate to high load applications where increased internal shear strength is required.

PRODUCT SPECIFICATIONS

TESTED PROPERTY	TEST METHOD	FREQUENCY	VALUE
Geotextile Property			
Cap Nonwoven, Mass/Unit Area	ASTM D 5261	1/200,000 ft^2	6.0 oz/yd^2 MARV(1)
Carrier Woven, Mass/Unit Area	ASTM D 5261	1/200,000 ft^2	3.1 oz/yd^2 MARV
Bentonite Property			
Swell Index	ASTM D 5890	1/100,000 lb	24 ml/2 g min
Moisture Content	ASTM D 4643	1/100,000 lb	12% max
Fluid Loss	ASTM D 5891	1/100,000 lb	18 ml max
Finished GCL Property			
Bentonite, Mass/Unit Area(2)	ASTM D 5993	1/40,000 ft^2	0.89 lb/ft^2 MARV
Tensile Strength(3)	ASTM D 6768	1/40,000 ft^2	30 lb/in MARV
Peel Strength	ASTM D 6496 ASTM D 4632(4)	1/40,000 ft^2	3.5 lb/in MARV 21 lb MARV
Hydraulic Conductivity(5)	ASTM D 5887	1/Week	5 x 10^{-9} cm/sec max
Index Flux(5)	ASTM D 5887	1/Week	1 x 10^{-8} m^3/m^2/sec max
Internal Shear Strength(6)	ASTM D 6243	Periodically	500 psf Typical
TYPICAL ROLL DIMENSIONS			
Width x Length(7)	Typical	Every Roll	15.5 ft x 150 ft
Area per Roll	Typical	Every Roll	2,325 ft^2
Packaged Weight	Typical	Every Roll	2,600 lb

NOTES:
- (1) Minimum Average Roll Value.
- (2) At 0% moisture content.
- (3) Tested in machine direction.
- (4) Modified ASTM D 4632 to use a 4 in wide grip. The maximum peak of five specimens averaged in machine direction.
- (5) Deaired, deionized water @ 5 psi maximum effective confining stress and 2 psi head pressure.
- (6) Typical peak value for specimen hydrated for 24 hours and sheared under a 200 psf normal stress.
- (7) Roll widths and lengths have a tolerance of ±1%.

SOLMAX GEOSYNTHETICS LLC
19103 GUNDLE ROAD, HOUSTON, TX 77073, USA

Stantec Consulting Services Inc.
10200 Alliance Road Suite 300, Cincinnati OH 45242-4754

January 20, 2026
File: 173410748
Revision 0

Indiana-Kentucky Electric Corporation
3932 U.S. Route 23
P.O. Box 468
Piketon, Ohio 45661

RE: Liner Design Criteria for New CCR Surface Impoundment
West Boiler Slag Pond - Retrofit (CCR Unit)
EPA CCR Rule: 40 CFR §257.72(a and c) and §257.70(c)
IKEC Clifty Creek Station
Madison, Jefferson County, Indiana

1.0 PURPOSE

This letter documents Stantec's certification of the alternative composite liner design for the retrofit area (CCR Unit) within the Clifty Creek Station's West Boiler Slag Pond. Based on this assessment, the CCR Unit is in compliance with the alternative composite liner design requirements in the EPA Final CCR Rule at 40 CFR 257.70(c)(1).

2.0 LINER DESIGN

As described in 40 CFR 257.102(k), retrofit of an existing CCR surface impoundment must comply with the requirements in §257.72. Prior to construction of the CCR surface impoundment, certification must be provided that the design of the alternative composite liner meets the requirements of §257.70(c).

Under §257.70(c), an alternative composite liner must consist of two components; the upper component consisting of, at a minimum, a 30-mil GM, and a lower component, that is not a geomembrane with a liquid flow rate no greater than the liquid flow rate of two feet of compacted soil with a hydraulic conductivity of no more that $1x10^{-7}$ centimeter per second (cm/sec). The hydraulic conductivity of any alternative to the two feet of compacted soil must be determined using recognized and generally accepted methods. The liquid flow rate comparison must be made using Equation 1 of §257.70(c), which is derived from Darcy's Law for gravity flow through porous media.

The alternative composite liner must meet the requirements specified in §257.70(b). A composite liner must consist of two components; the upper component consisting of, at a minimum, a 30-mil geomembrane liner (GM), and the lower component consisting of at least a two-foot layer of compacted soil with a hydraulic conductivity of no more than 1×10^{-7} cm/sec. GM components consisting of high density polyethylene (HDPE) must be at least 60-mil thick. The GM or upper liner component must be installed in direct and uniform contact with the compacted soil or lower liner component. The composite liner must be:

> (1) Constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure due to pressure gradients (including static head and external hydrogeologic forces), physical contact with the CCR or leachate to which they are exposed, climatic conditions, the stress of installation, and the stress of daily operation;

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(2) Constructed of materials that provide appropriate shear resistance of the upper and lower component interface to prevent sliding of the upper component including on slopes;

(3) Placed upon a foundation or base capable of providing support to the liner and resistance to pressure gradients above and below the liner to prevent failure of the liner due to settlement, compression, or uplift; and

(4) Installed to cover all surrounding earth likely to be in contact with the CCR or leachate.

3.0 SUMMARY OF FINDINGS

The alternative composite liner design for the retrofit area within the Clifty Creek Station's West Boiler Slag Pond includes:

Upper component: 30-mil LLDPE geomembrane. This complies with §257.70(c)(1).

Lower component: a geosynthetic clay liner (GCL) with the hydraulic conductivity determined using recognized and generally accepted methods and the anticipated field conditions.

The retrofit process basin is an immediate need to temporarily manage bottom ash from the station. The geosynthetics will be selected based on manufacturer and lead time. The lower component will be a reinforced GCL, which will be tested in accordance with ASTM D6766 using site-specific leachate once selected. The flow rate calculation has been prepared using the specified permeability for a reinforced GCL from the Geosynthetic Research Institute's GRI-GCL3 Standard Specification, "Test Methods, Required Properties, and Testing Frequencies of Geosynthetic Clay Liners (GCLs)". The following table presents the calculation of flow rate comparison.

	Compacted Soil Liner	GCL
Hydraulic Head on Liner (Not Considering GM) (h)	5 feet	5 feet
Compacted Soil/GCL Bentonite Thickness (t)	2 feet	7-10 mm (hydrated)
Hydraulic Conductivity of Liner (k)	$1x10^{-7}$ cm/sec	$5x10^{-9}$ cm/sec
Liquid Flow Rate per Unit Area (q = k x ((h/t)+1)	$3.5x10^{-7}$ cm/sec	$\approx 5x10^{-9}$ cm/sec

GCL permeability is tested using ASTM D5887. A 2 pounds per square inch (psi) head pressure is applied for the test. Five feet of hydraulic head equals approximately 2.16 psi. The liquid flow rate per unit area is anticipated to be slightly greater than the measured hydraulic conductivity of the liner. The liquid flow rate through the GCL for the lower component of the alternative composite liner for the retrofit area of the West Boiler Slag Pond is anticipated to be less than the liquid flow rate through two feet of compacted soil with a hydraulic conductivity of $1x10^{-7}$ cm/sec. This complies with §257.70(c)(1).

4.0 QUALIFIED PROFESSIONAL ENGINEER CERTIFICATION

I, Jacqueline S. Harmon, being a Professional Engineer in good standing in the State of Indiana, do hereby certify, to the best of my knowledge, information, and belief:

1. that the information contained in this certification is prepared in accordance with the accepted practice of engineering;

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2. that the information contained herein is accurate as of the date of my signature below; and

3. that, pursuant to 40 CFR 257.102(k) and 40 CFR 257.72(c), the alternative composite liner design for the retrofit of Clifty Creek Station's West Boiler Slag Pond meets the requirements specified in 40 CFR 257.70(c).

SIGNATURE _____ DATE 1/20/2026

Jacqueline S. Harmon, PE
Principal

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1/20/2026