



INDIANA-KENTUCKY ELECTRIC CORPORATION

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

WRITER'S DIRECT DIAL NO:
740-289-7259

May 16, 2023

Delivered Electronically

Mr. Brian Rockensuess
Commissioner
Indiana Department of Environmental Management
100 N. Senate Avenue
Mail Code 50-01
Indianapolis, IN 46204-2251

**Re: Indiana-Kentucky Electric Corporation
Clifty Creek Station
Notification of CCR Rule Information Posting
Annual Certified CCR Surface Impoundment Inspection Report**

Dear Mr. Rockensuess:

As required by 40 CFR 257.106(g), the Indiana-Kentucky Electric Corporation (IKEC) is providing notification to the Commissioner (State Director) of the Indiana Department of Environmental Management that a qualified professional engineer has completed the Annual CCR Surface Impoundment Inspection for the 2022 operating year in accordance with 40 CFR 257.83(b) for IKEC's Clifty Creek Station. The inspection report has been placed in the facility's Operating Record, as well as on the company's publically accessible internet site.

This information can be viewed on IKEC's publicly accessible internet site at:
<http://www.ovec.com/CCRCompliance.php>

If you have any questions, or require any additional information, please call me at (740) 289-7259.

Sincerely,

A handwritten signature in black ink that reads "Jeremy Galloway".

Jeremy Galloway
Environmental Specialist

JDG:tlf

2022 ANNUAL DAM AND DIKE INSPECTION REPORT

**West Boiler Slag Pond
& Landfill Runoff Collection Pond**

**CLIFTY CREEK PLANT
Indiana-Kentucky Electric Corporation
MADISON, INDIANA**

December, 2022

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

Prepared by: American Electric Power Service Corporation
1 Riverside Plaza
Columbus, OH 43215



Document ID: GERS-22-045

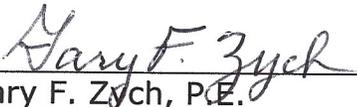
**2022 Dam & Dike Inspection Report
West Boiler Slag Pond &
Landfill Runoff Collection Pond**

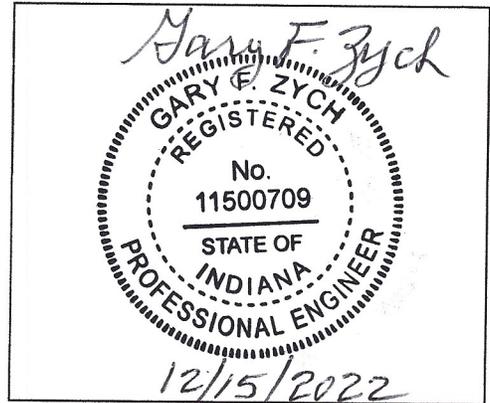
**CLIFTY CREEK PLANT
MADISON, INDIANA**

INSPECTION DATE: November 23, 2022
DOCUMENT ID: GERS-22-045

PREPARED BY:  **DATE** 12/15/2022
Shah S. Baig, P.E.

REVIEWED BY:  **DATE** 12/15/2022
Mohammad A. Ajlouni, Ph.D., P.E.

APPROVED BY:  **DATE** 12/15/2022
Gary F. Zych, P.E.
Manager - Geotechnical Engineering



**PROFESSIONAL ENGINEER
SEAL & SIGNATURE**

I certify to the best of my knowledge, information and belief the information contained in this report meets the requirements of 40 CFR § 257.83(b).

TABLE OF CONTENTS

1.0 INTRODUCTION.....2
2.0 DESCRIPTIONS OF IMPOUNDMENTS2
 2.1 WEST BOILER SLAG POND 2
 2.2 LANDFILL RUNOFF COLLECTION POND 3
3.0 REVIEW OF AVAILABLE INFORMATION (257.83(b)(1)(i))3
4.0 INSPECTION (257.83(b)(1)(ii)).....3
 4.1 General..... 3
 4.2 WEST BOILER SLAG POND 4
 4.2.1 Changes in geometry since last inspection (257.83(b)(2)(i))..... 4
 4.2.2 Instrumentation (257.83(b)(2)(ii)) 5
 4.2.3 Impoundment *CHARACTERISTICS* (257.83(b)(2)(iii, iv, v))..... 5
 4.2.4 Visual inspection (257.83(b)(2)(i)) 6
 4.2.5 Changes that effect stability or operation (257.83(b)(2)(vii)) 7
 4.3 LANDFILL RUNOFF COLLECTION POND 8
 4.3.1 Changes in geometry since last inspection (257.83(b)(2)(i))..... 8
 4.3.2 Instrumentation (257.83(b)(2)(ii)) 8
 4.3.3 Impoundment *CHARACTERISTICS* (257.83(b)(2)(iii, iv, v))..... 8
 4.3.4 Visual inspection (257.83(b)(2)(i)) 9
 4.3.5 Changes that effect stability or operation (257.83(b)(2)(vii)) 10
5.0 SUMMARY OF FINDINGS10
 5.1 MAINTENANCE ITEMS 10
 5.2 ITEMS TO MONITOR..... 11
 5.3 DEFICIENCIES (257.83(b)(2)(vi))..... 11

LIST OF TABLES

- Table 1 WBSP Maximum recorded instruments reading since the previous annual inspection
- Table 2 Summary of Relevant Storage Information WBAP
- Table 3 LRCP Maximum recorded instruments reading since the previous annual inspection
- Table 4 Summary of Relevant Storage Information LRCP

LIST OF FIGURES

- FIGURE 1 – Site Location Map
- FIGURE 2 - West Boiler Slag Pond Piezometers Location Map
- FIGURE 3 - West Boiler Slag Pond Piezometers Data
- FIGURE 4 - West Boiler Slag Pond Photographs Location Plan
- FIGURE 5 - Landfill Runoff Collection Pond Piezometers Location Map
- FIGURE 6 - Landfill Runoff Collection Pond Piezometers Data
- FIGURE 7 - Landfill Runoff Collection Pond Photographs Location Map

ATTACHMENT

Inspection Photographs

1.0 INTRODUCTION

This report was prepared by AEP- Geotechnical Engineering Services (GES) section, in part, to fulfill requirements of 40 CFR 257.83 and the Indiana Department of Natural Resource (IDNR), Division of Water and to provide Indiana-Kentucky Electric Corporation (IKEC) and Clifty Creek Station with an evaluation of the facility.

American Electric Power Service Corporation's Civil Engineering Division administers the Clifty Creek Station Dam Inspection and Maintenance Program (DIMP). As part of the DIMP, staff from the GES annually conducts dam and dike inspections. This report contains the inspection findings, observations, photographic descriptions, conclusions, and maintenance recommendations. This inspection report addresses the West Boiler Slag Pond (WBSP) (Previously known as West Bottom Ash Pond), and Landfill Runoff Collection Pond (LRCP) (Previously known as Fly Ash Pond) at the Clifty Creek Station. The East Bottom Ash Pond (EBAP) is no longer active for ash storage and waste water treatment. The EBAP was drained, backfilled and closed converted to a surface water collection pond in the 2014. These containment facilities are illustrated on Figure 1.

Mr. Danny Hunt, Plant Engineer, Clifty Creek Station is responsible for the onsite management and inspection activities related to the ponds and was present during this inspection. The inspection was performed on November 23, 2022 by Shah Baig, P.E. of AEP Geotechnical Engineering. Weather conditions were sunny, light breeze, with temperatures ranging from the lower 30 degrees Fahrenheit in the morning to the low 60 degrees Fahrenheit in the afternoon, with good visibility.

2.0 DESCRIPTIONS OF IMPOUNDMENTS

2.1 WEST BOILER SLAG POND

The WBSP (Figure 1) is located southwest of the station. It is formed by natural grade to the north, east, and west and an embankment dam on the south that runs along the bank of the Ohio River. The WBSP serves as a settling basin for sluiced bottom ash produced at the station and receives stormwater runoff from approximately 510 acres. The WBSP is used for the storage of bottom ash generated from all six generating Units. It consists of a single dike that is approximately 2,000 feet long and is approximately 35 feet high. The crest is at elevation 470.0 feet. The pond contains two primary areas: the eastern portion near the sluice pipes that is actively dredged for the recovery of material, and a western portion with minimal deposition or dredging activities. A vegetation delta separates the two areas acting as a natural filtering zone. The pond discharges to the Ohio River through a principal spillway and permitted Outfall #002 located at the southern edge of the impoundment.

At present, closure-by-removal work is underway at the WBSP as part of the CCR-ELG compliance project. A new pond (low volume waste treatment system) is under construction, located at the western end of the WBSP in order to manage the non-CCR waste streams from the plant operations.

2.2 LANDFILL RUNOFF COLLECTION POND (LRCP)

The LRCP is located at the southern edge of the station (Figure 1). It is bordered by the station's coal combustion residuals (CCR) landfill to the north, natural grade to the east and west, and by an embankment dam to the south that runs along the bank of the Ohio River.

The LRCP dam is a cross valley dam located on a no-named tributary to the Ohio River. The dam is approximately 1,025 feet long and has a maximum height of 75 feet. The crest is at elevation 505.0 feet. Currently, the facility functions as the stormwater and leachate collection pond for the CCR landfill, and discharges to the Ohio River through a NPDES-permitted Outfall #001.

Approximately 508 acres of both landfill contact water and stormwater runoff drain to the LRCP. Upon the completion of the CCR landfill, the area draining to the LRCP will be reduced to approximately 443 acres.

3.0 REVIEW OF AVAILABLE INFORMATION (257.83(b)(1)(i))

In addition to the current visual inspection, a review of available information regarding the status and condition of the WBSF and the LRCP including files available in the operating record was conducted. Available information consists of design and construction information, previous structural stability assessments, previous 7-day inspection reports, and previous annual inspection reports was conducted. Based on the findings of the current visual inspection and a review of the available data it is concluded that there were no signs of actual or potential structural weakness or adverse conditions and the facility is performing as intended in the design documents.

4.0 INSPECTION (257.83(b)(1)(ii))

4.1 General

The summary of the visual observations uses terms to describe the general appearance or condition of an observed item, activity or structure. Their meaning is understood as follows:

- Good: A condition or activity that is generally better or slightly better than what is minimally expected or anticipated from a design or maintenance point of view.
- Fair or Satisfactory: A condition or activity that generally meets what is minimally expected or anticipated from a design or maintenance point of view.
- Poor: A condition or activity that is generally below what is minimally expected or anticipated from a design or maintenance point of view.
- Minor: A reference to an observed item (e.g., erosion, seepage, vegetation, etc.) where the current maintenance condition is below what is normal or desired, but which is not currently causing concern from a structure safety or stability point of view.
- Significant: A reference to an observed item (e.g. erosion, seepage, vegetation, etc.) where the current maintenance program has neglected to improve the

condition. Usually, conditions that have been previously identified in the previous inspections, but have not yet been corrected.

Excessive: A reference to an observed item (e.g., erosion, seepage, vegetation, etc.) where the current maintenance condition is below or worse than what is normal or desired, and which may have affected the ability of the observer to properly evaluate the structure or particular area being observed or which may be a concern from a structure's safety or stability point of view.

In addition, a "deficiency" is some evidence that a dam or dike has developed a condition that could impact the structural integrity of the impoundment. There are four general categories of deficiencies. These four categories are described below:

1. Uncontrolled Seepage

Uncontrolled seepage is seepage that is not behaving as the design engineer has intended. An example of uncontrolled seepage is seepage that comes through or around the embankment and is not collected and safely carried off by a drain. Seepage that is collected by a drain can still be uncontrolled, if it is not safely transported, such as seepage that is not clear. Seepage that is unable to be measured and/or observed is considered uncontrolled seepage.

[Wet or soft areas are not considered uncontrolled seepage, but they can lead to this type of deficiency. These areas should be monitored frequently.]

2. Displacement of the Embankment:

Displacement is a large scale movement of part of the dam. Common signs of displacement are cracks, scarps, bulges, depressions, sinkholes and slides.

3. Blockage of Water Control Appurtenances

Blockage of water Control Appurtenances is the restriction of flow at spillways, decant or pipe spillways, or drains.

4. Erosion:

Erosion is the gradual movement of surface material by water, wind or ice. Erosion is considered a deficiency when it is more than a minor routine maintenance item.

Results of the visual inspection performed on November 23, 2022, are summarized below with inspection photographs included in the attachment.

4.2 WEST BOILER SLAG POND

4.2.1 CHANGES IN GEOMETRY SINCE LAST INSPECTION (257.83(b)(2)(i))

No modifications have been made to the geometry of the WBSP since the 2021 annual inspection. The geometry of the impoundment has remained essentially unchanged.

The interior slopes and bottom of the western area of the pond are re-graded as part of the construction of a new lined pond.

4.2.2 Instrumentation (257.83(b)(2)(ii))

The location and type of instrumentation are shown on Figure 2. The results of the measurements of various piezometers since November 2015 are shown in Figure 3. The maximum recorded readings of each instrument since the previous annual inspection is shown in Table 1.

Table 1 - WBSP Maximum Recorded Instruments Reading Since The Previous Annual Inspection

Instrument	Type	Maximum Reading since last annual inspection	Date of Reading
PZ-1 (B-1)	Piezometer	455.14	1/14/22
PZ-3 (B-3)	Piezometer	435.20	3/21/22
PZ-4 (B-4)	Piezometer	440.20	8/16/22
PZ-5 (B-5)	Piezometer	452.80	3/21/22

PZ-1 is a piezometer located at the crest of the constructed dike which was found mostly in dry condition previously, but lately yielding readings in the early part of 2019 through 2022. PZ-3 is a piezometer located at the crest of the constructed dike. PZ-4 is a piezometer located along a bench near the downstream toe of the constructed dike. PZ-5 is a piezometer located at the crest of the constructed dike and was mostly dry since May 2022. A review of the recent data contained on the WBSP static water elevation plot showed that piezometers P-1, P-4, and P-5 exhibited inconsistent water elevations. Significant fluctuation in the river water level was noticed compared to the pond level. It appears that the river water level has more influence on all the piezometer's water levels.

4.2.3 IMPOUNDMENT CHARACTERISTICS (257.83(b)(2)(iii, iv, v))

Below is a summary of the minimum, maximum, and present depth and elevation of the impounded water & CCR since the previous annual inspection; the storage capacity of the impounding structure at the time of the inspection; and the approximate volume of the impounded water and CCR at the time of the inspection.

Table 2 Summary of Relevant Storage Information WBAP

IMPOUNDMENT CHARACTERISTICS	
West Boiler Slag Pond	
Approximate Minimum depth (Elevation) of impounded water since last annual inspection	6 ft. (445.5) ft.
Approximate Maximum depth (Elevation) of impounded water since last annual inspection	8 ft. (448) ft.
Approximate Present depth (Elevation) of impounded water since last annual inspection	6 ft. (445.5) ft.
Approximate Minimum depth (Elevation) of CCR since last annual inspection	6.5 ft. (439.5) ft.
Approximate Maximum depth (Elevation) of CCR since last annual inspection (ft.)	7.0 ft. (440.0) ft.
Approximate Present depth (Elevation) of CCR since last annual inspection	6.5 ft. (439.5) ft.
Storage Capacity of impounding structure at the time of the inspection	1,950,000 c.y.
Approximate volume of impounded water at the time of the inspection	837,000 c.y.
Approximate volume of CCR at the time of the inspection	484,719 c.y.

4.2.4 VISUAL INSPECTION (257.83(b)(2)(i))

A visual inspection of the WBSP was conducted to identify any signs of distress or malfunction of the impoundment and appurtenant structures. Specific items inspected included all structural elements of the dam such as inboard and outboard slopes, crest, and toe; as well as appurtenances such as the outlet structure at the West Boiler Slag Pond, and pipe discharge structure.

In general, the crest, interior and exterior slopes of the dike appear to be in satisfactory and stable condition. No significant change to the exterior slope was noted from the previous inspection. No significant settlement or misalignment was observed. Wet area at the toe of the south dike, west section was observed during the inspection. No animal burrows were observed during the inspection. Figure 4, illustrating photographs location and photographs are included in the report.

1. Photographs No. 1 and 2 illustrates a typical overview of the south dike crest. The crest appears to be in good and stable condition. Signs of settlement, misalignment and cracking were not observed. Minor surface erosion at the southwest corner of the crest was observed (Photograph No. 3).
2. The interior slope of the west section of the dike is illustrated in Photograph No. 4. This slope is currently graded for the construction of the new pond. The interim slope condition appeared fair. The overflow decant structure is not in use due to construction activities in this area of the pond.

3. Photograph No. 5 shows the general condition of the south dike exterior slope. The slope appeared in good and stable condition. There were no signs of settlement, misalignment, sloughing or erosion. Overflow discharge pipes are installed on the exterior slope intermediate bench from the east side of the pond. The temporary arrangement of rerouting overflow discharge via pipes are functioning and appeared in good condition (Photographs No. 5 and 6).
4. Overall view of the interior slope of the south dike (Photograph No. 7). Most of the bottom ash from this area is excavated and regrading and subgrade preparation was in progress at the time of inspection. The interim slope appeared in good and stable condition.
5. The northwest section of the dike and interior slope are shown in Photographs No. 8 and 9. This slope is also cut back and regraded as prepped work for the new lined pond. Overall, the interim slopes were in good and stable condition.
6. Photographs No.10 and 11 illustrate construction activities of a new lined pond in progress. Bottom ash from this area has been removed and subgrade grading work was in progress. The temporary access road and new pond bottom and side slope appeared good.
7. Typical view of the north slope (Photographs No. 12 and 13) including the hillside is excavated and regraded for the pond closure work. Bottom ash removal activities are in progress and the hillside interim side slope are in stable condition.
8. Photographs No. 14 and 15 illustrates the interior slope of the northeast section of the dike. The interior slope appeared in fair condition. This area of the pond interior consists substantial stockpiles of bottom ash. Minor erosion gullies were noticed along this section of the dike. Ash and other plant operational stream discharge pipes are also located in this section of the dike (Photograph No. 16). The discharge pipes, protective liner, and side slope appeared in fair and stable condition.

Overall, the facility is in satisfactory condition. The impoundment is functioning as intended with no signs of potential structural weakness or conditions which maybe disrupting to the safe operation of the impoundment. Additional pictures taken during the inspection can be made available upon request.

4.2.5 CHANGES THAT EFFECT STABILITY OR OPERATION (257.83(b)(2)(vii))

Based on interviews with plant personnel and field observations there were no changes to the W BSP since the last annual inspection that would affect the stability of the impounding structure. Operational changes were implemented for the closure activities, but do not have any effect on the stability of the impounding structure. The side slopes of the western section of the pond were under construction/modification for a new lined pond. The bottom and side slopes are regraded per the new pond design but this work has not effective the overall stability of the pond structure.

4.3 LANDFILL RUNOFF COLLECTION POND

4.3.1 CHANGES IN GEOMETRY SINCE LAST INSPECTION (257.83(b)(2)(i))

No modifications have been made to the geometry of the LRCP since the 2021 annual inspection. The geometry of the impoundment has remained essential unchanged.

4.3.2 INSTRUMENTATION (257.83(b)(2)(ii))

There are piezometers and monitoring wells installed in and around the LRCP dam. The location and type of instrumentation is shown on Figure 5. The results of the measurements of various piezometers since November 2015 are shown in Figure 6. The maximum recorded readings of each instrument since the previous annual inspection is shown in Table 3 below.

Table 3 - LRCP Maximum recorded instruments reading since the previous annual inspection

Instrument	Type	Maximum Reading since last annual inspection	Date of reading
CF-9405A	Piezometer	441.034	4/14/22
CF-9406	Piezometer	444.15	2/25/22
CF-9407	Piezometer	455.21	2/25/22
SP-84-1	Piezometer	471.4	1/28/22
SP-84-2	Piezometer	450.08	1/14/22
SP-84-4	Piezometer	452.95	1/14/22
SP-84-6	Piezometer	416.56	12/27/21
SP-84-7	Piezometer	453.09	2/25/22
SP-84-8A	Piezometer	442.36	1/14/22

Piezometer SP-84-1, SP-84-2, SP-84-4, SP-84-5, and SP-84-6 are removed from service in 2022. There appears to be significant seasonal fluctuation in the river water elevation compared to the pond level. Review of the static water elevation plot indicates that the static water levels for the piezometers generally fluctuate as a result of some variation in the pond water elevation and seasonal changes in the river water elevations, however, it appears that the fluctuations in the river elevations had more influence on all the remaining piezometers readings.

4.3.3 IMPOUNDMENT CHARACTERISTICS (257.83(b)(2)(iii, iv, v))

Below is a summary of the minimum, maximum, and present depth and elevation of the impounded water & CCR since the previous annual inspection; the storage capacity of the impounding structure at the time of the inspection; and the approximate volume of the impounded water and CCR at the time of the inspection.

Table 4 Summary of Relevant Storage Information LRCP

Approximate Minimum depth (Elevation) of impounded water since last annual inspection	3.6 ft. (478.6) ft.
Approximate Maximum depth (Elevation) of impounded water since last annual inspection	13 ft. (488) ft.
Approximate Present depth (Elevation) of impounded water since last annual inspection	3.6 ft. (478.6) ft.
Approximate Minimum depth (Elevation) of CCR since last annual inspection	45 ft. (475) ft.
Approximate Maximum depth (Elevation) of CCR since last annual inspection (ft.)	45 ft. (475) ft.
Approximate Present depth (Elevation) of CCR since last annual inspection	45 ft. (475) ft.
Storage Capacity of impounding structure at the time of the inspection	930,000 c.y.
Approximate volume of impounded water at the time of the inspection	553,000 c.y.
Approximate volume of CCR at the time of the inspection	3,150,000 c.y.

4.3.4 VISUAL INSPECTION (257.83(B)(2)(i))

A visual inspection of the LRCP was conducted to identify any signs of distress or malfunction of the impoundment and appurtenant structures. Specific items inspected included all structural elements of the dam such as inboard and outboard slopes, crest, and toe; as well as appurtenances such as the outlet structure at the Landfill Runoff Collection Pond, and pipe discharge structure.

Overall, the crest, interior slope and exterior slope is well vegetated and in stable condition. There were no apparent signs of new sloughing, depressions, areas of wetness, and seeps. Control of surface vegetation was considered satisfactory except along the outlet channel. The spillway outlet and discharge channel appear to have no obstructions, but the flow was minimal at the time of the inspection. Figure 7, illustrating photographs location and photographs are included in the report.

1. Photographs No. 17 and 18 illustrates the seepage control blanket previously installed. No visible seepage was observed during the inspection. The riprap cover was in good condition and no vegetation was seen protruding within the blanket.
2. Photographs No. 19 and 20 shows an overall view of the east exterior slope of the dam. Throughout exterior slope vegetation control was good and there were no signs of sloughing, erosion or instability. In general, the exterior slope appeared to be in satisfactory and stable condition.
3. A minor depression (Photograph No. 21) was encountered at the southeast area of the exterior slope along the toe. The access road from the crest of the dam to the toe area appeared in good condition (Photograph No. 22). Minor rutting along the sides were noticed (Photograph No. 23).

4. Photographs No. 24 and 25 illustrate south exterior slope of the dam. Throughout, vegetation control was adequate and there were no signs of sloughing, erosion or instability. No visible change was observed from previous inspections. In general, the exterior slope appeared to be in satisfactory and stable condition
5. Photograph No. 26 shows principal spillway outlet pipe that flows into a channel (Photograph No. 27) and then to Ohio River. The outlet pipe had minimum flow and the channel indicated positive flow at the time of the inspection. Standing water and minor vegetation was noticed in the channel.
6. Photograph No. 28 illustrates an overview of the principal spillway decant structure. The decant structure and the access stairway appeared to be functioning properly and was free of obstructions. The recently added pipe (not shown in this photograph) to allow for treatment of discharged water was in functional condition. No water was flowing in the decant structures at the time of inspection.
7. Photographs No. 29 and 30 illustrates typical condition of the crest and interior slope of the dam. Saddle dam is also part of this section of the dam. Signs of misalignment and settlement were not observed. Minor surface cracks in the pavement were observed. Those cracks are attributed to the age of the pavement and the results of weathering process. Overall, the slope was found to be in satisfactory and stable condition

Overall, the facility was in satisfactory functional condition. The impoundment is functioning as intended with no signs of potential structural weakness or conditions which may be disrupting to the safe operation of the impoundment.

4.3.5 CHANGES THAT EFFECT STABILITY OR OPERATION (257.83(b)(2)(vii))

Based on interviews with plant personnel and field observations there were no changes to the Landfill Runoff Collection Pond since the last annual inspection that would affect the stability or operation of the impounding structure.

5.0 SUMMARY OF FINDINGS

5.1 MAINTENANCE ITEMS

The following maintenance items were identified during the visual inspection:

West Boiler Slag Pond

- Minor rutting of the south dike crest shall be repaired by backfilling/regrading with compatible material.
- Structural integrity of dikes and components of pond should be maintained during the course of closure by removal and installation of new pond activities.

Landfill Runoff Collection Pond

- Minor rutting at the access road shall be repaired by backfilling/regrading with compatible material. A minor depression (Photograph No. 21) shall be backfilled with soil and compacted.

5.2 ITEMS TO MONITOR

West Boiler Slag Pond

None.

Landfill Runoff Collection Pond

None.

5.3 DEFICIENCIES (257.83(b)(2)(vi))

There were no deficiencies or signs of structural weakness or disruptive conditions that were observed at the time of the inspection that would require additional investigation or remedial action. There were no deficiencies noted during any of the periodic 7-day or monthly inspections. If any of these conditions occur before the next annual inspection contact AEP Geotechnical Engineering immediately.

If you have any questions with regard to this report, please contact Shah Baig at 614-716-2241 or Gary Zych at 614-716-2917.

LIST OF FIGURES

FIGURE 1 – Site Location Map

FIGURE 2 - West Boiler Slag Pond Piezometers Location Map

FIGURE 3 - West Boiler Slag Pond Piezometers Data

FIGURE 4 - West Boiler Slag Pond Photographs Location Plan

FIGURE 5 - Landfill Runoff Collection Pond Piezometers Location Map

FIGURE 6 - Landfill Runoff Collection Pond Piezometers Data

FIGURE 7 - Landfill Runoff Collection Pond Photographs Location Map

FIGURE 1 – SITE LOCATION MAP
Clifty Creek Station, Madison, Indiana

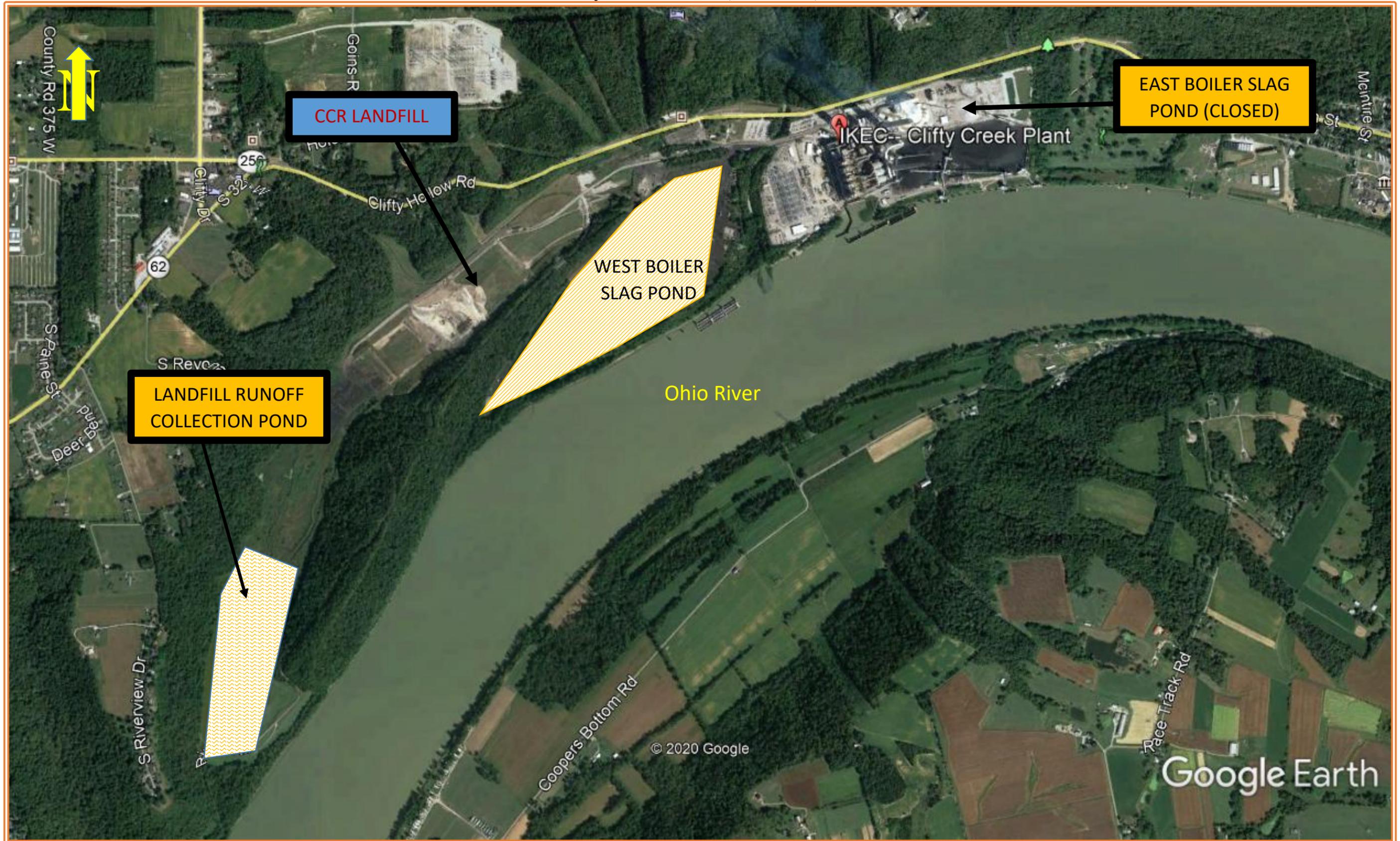


FIGURE 2 - WEST BOILER SLAG POND PIEZOMETERS LOCATION MAP



LEGEND
● Gill Netting with Unbalanced (Shaky) Tube Samples and/or Standard Penetration Tests

Scale 1"=40'

Graphic Scale 0 10 20 30 Feet

FIGURE 3 - WEST BOILER SLAG POND PIEZOMETERS DATA

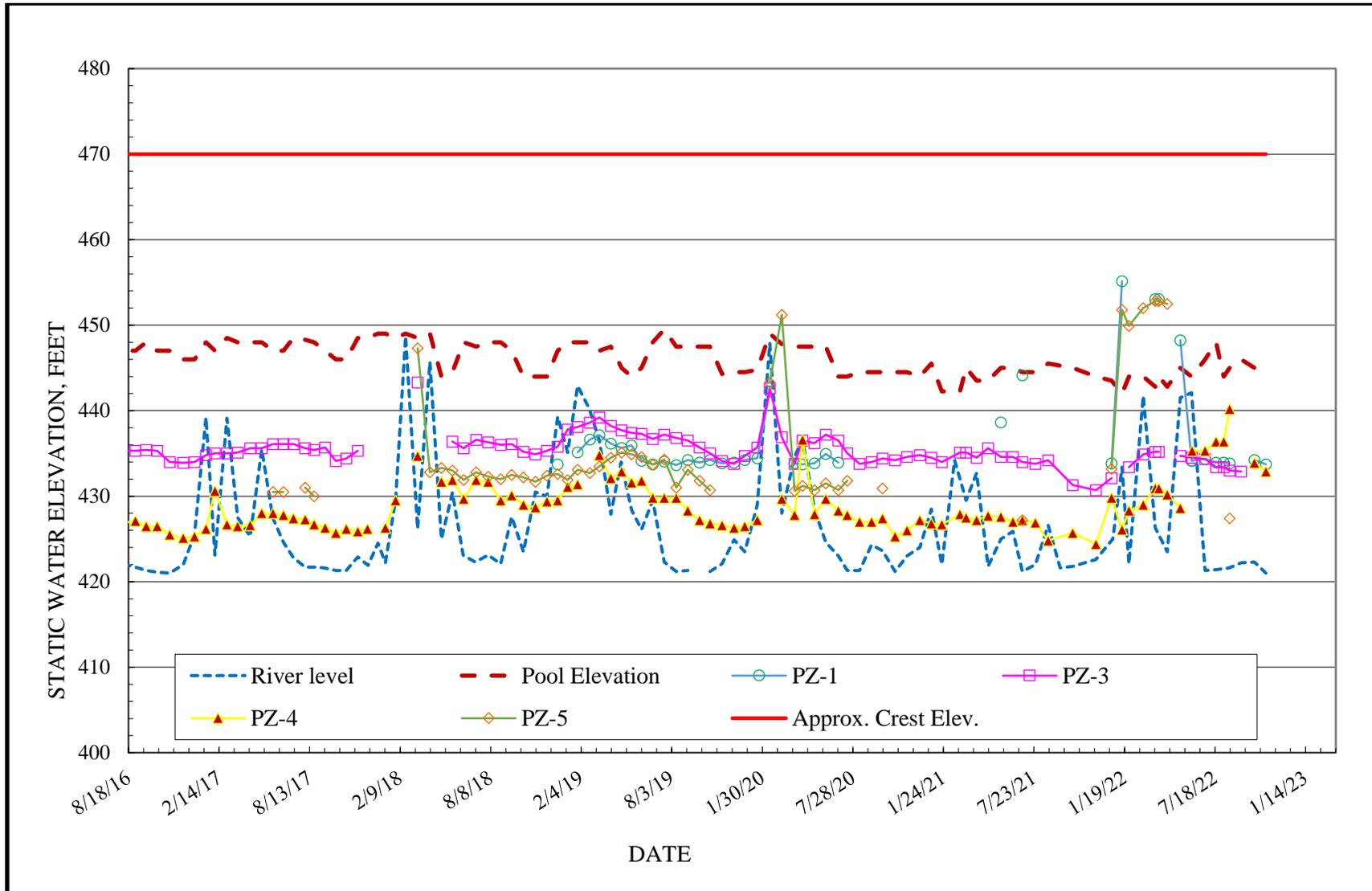


FIGURE 4 – WEST BOILER SLAG POND PHOTOGRAPHS LOCATION MAP

Clifty Creek Station, Madison, Indiana



FIGURE 5 - LANDFILL RUNOFF COLLECTION POND PIEZOMETERS LOCATION MAP

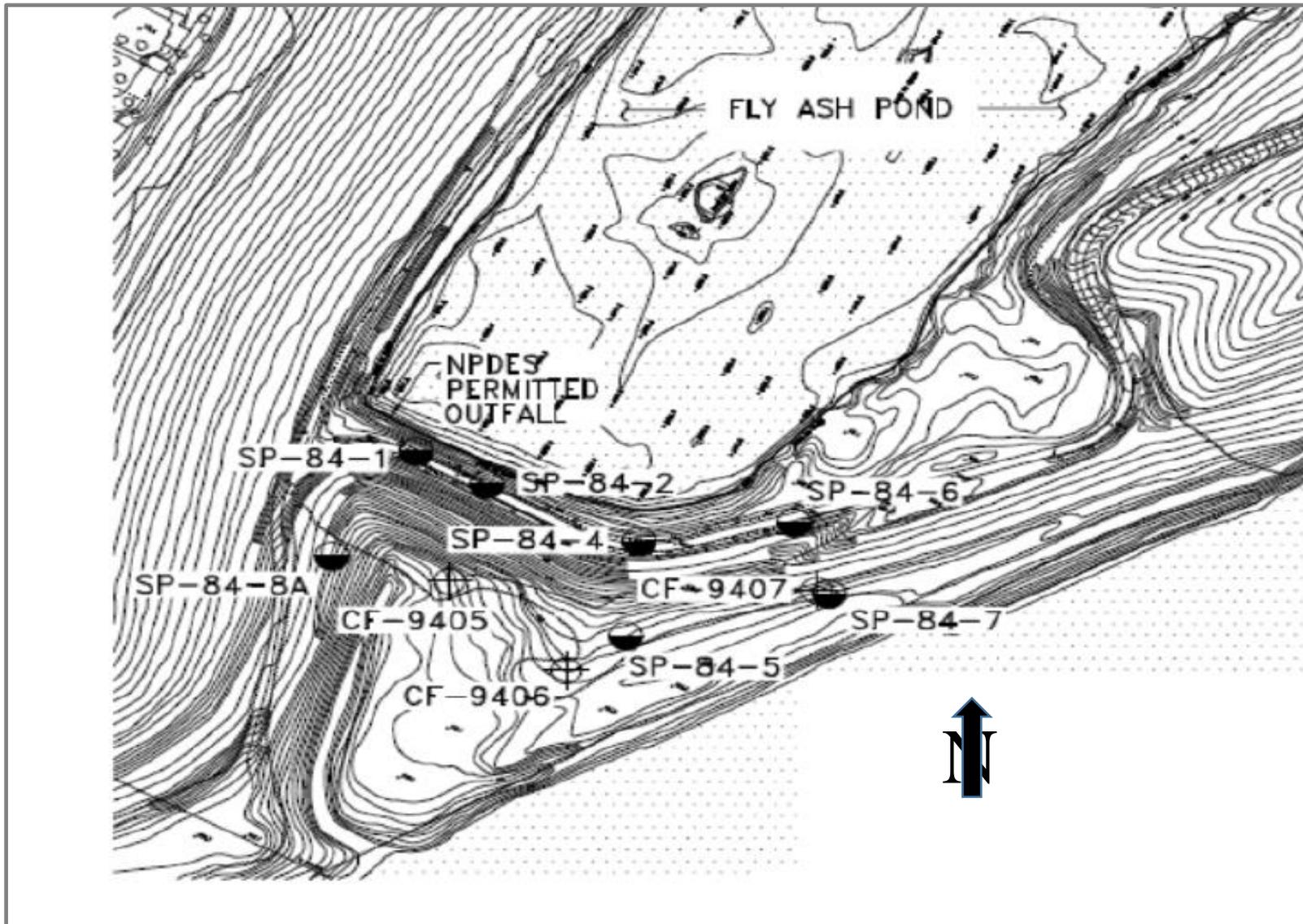


FIGURE 6 - LANDFILL RUNOFF COLLECTION POND PIEZOMETERS DATA

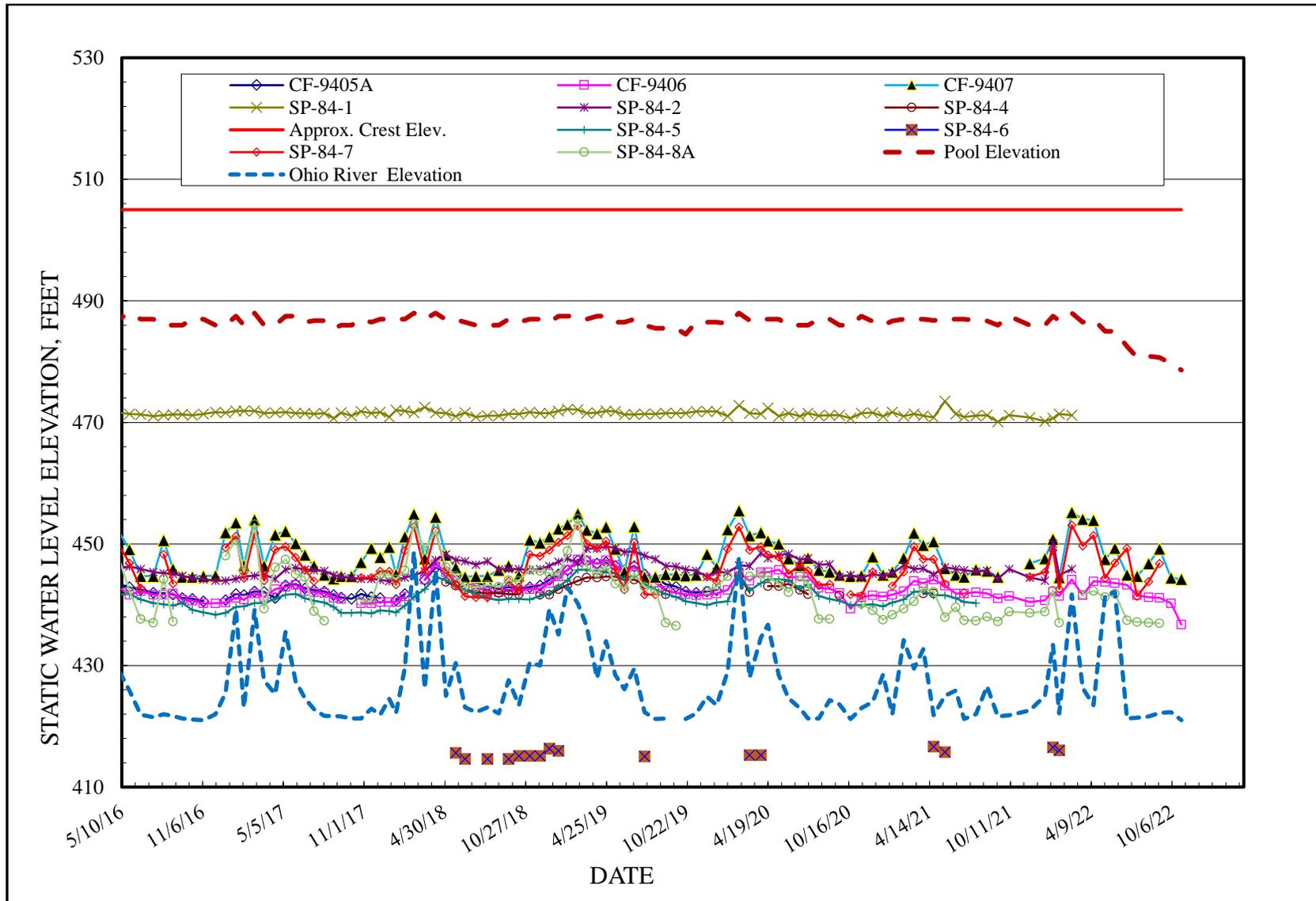


FIGURE 7 - Landfill Runoff Collection Pond Photographs Location Map
Clifty Creek Station, Madison, Indiana



ATTACHMENT

Inspection Photographs

<p>Photograph No. 1</p> <p>This photograph illustrates crest of the south dike (looking northeast).</p>	
<p>Photograph No. 2</p> <p>This photograph illustrates crest of the south dike (looking southwest).</p>	
<p>Photograph No. 3</p> <p>Minor erosion on the south side of the crest.</p>	

<p>Photograph No. 4</p> <p>Typical condition of the south dike interior slope.</p>	 A wide-angle photograph showing the interior slope of a dike. The slope is covered in dark, loose soil and some sparse vegetation. In the background, a large industrial facility with several tall smokestacks emitting white plumes is visible under a clear blue sky. A paved road runs along the right side of the dike.
<p>Photograph No. 5</p> <p>Typical view of the exterior slope and discharge pipes let to the outfall.</p>	 A photograph showing the exterior slope of the dike. Several large, dark discharge pipes are visible, leading down a grassy slope towards the outfall. A metal railing is on the left side. In the background, the same industrial facility with smokestacks is visible under a clear blue sky.
<p>Photograph No. 6</p> <p>Typical exterior at the overflow discharge pipes outlet (south dike)</p>	 A close-up photograph of the overflow discharge pipes outlet. Water is gushing out of the pipes, creating a large splash of white water. The area is covered with grey gravel and some dark debris. Bare trees are visible in the background against a clear blue sky.

<p>Photograph No. 7</p> <p>Typical interior slope of the south dike (looking northeast).</p>	 A wide-angle photograph showing the interior slope of a dike. The foreground is a flat, sandy area with visible tire tracks. In the middle ground, a dark, sloping dike structure is visible. In the background, there is an industrial facility with several tall smokestacks, one of which is emitting a plume of white smoke. A power line tower is also visible in the distance under a clear blue sky.
<p>Photograph No. 8</p> <p>Southwest corner interior slope.</p>	 A close-up photograph of the southwest corner of the dike's interior slope. The ground is a mix of dark, wet soil and lighter-colored sand. There are several large, dark logs or branches lying on the ground. The background shows a wooded area with bare trees on a hillside.
<p>Photograph No. 9</p> <p>Typical interior slope of the north dike.</p>	 A photograph showing the interior slope of the north dike. The foreground is a flat, sandy area with some tire tracks. In the background, there is a dense line of bare trees on a hillside under a clear blue sky.

<p>Photograph No. 10</p> <p>A new pond is constructed in the southwest area.</p>	 An aerial photograph showing a large, flat construction site. In the foreground, a yellow bulldozer is positioned on a gravelly area. The middle ground features a large, rectangular pond under construction, with some water visible. The background consists of a line of bare trees under a clear blue sky. A power line tower is visible in the distance.
<p>Photograph No. 11</p> <p>Construction activities for the new pond.</p>	 A side-view photograph of the construction site. A yellow bulldozer is working on a gravelly embankment. To the left, a dark, muddy slope is visible. The background shows a line of bare trees and a clear blue sky.
<p>Photograph No. 12</p> <p>Typical view of the north interior slope.</p>	 A ground-level photograph showing a dirt road with tire tracks leading towards a construction site. In the background, there are industrial structures, including two tall smokestacks emitting white smoke. A yellow bulldozer and a white pickup truck are visible near a pile of gravel. The foreground shows a dirt embankment with some sparse vegetation.

<p>Photograph No. 13 Northeast interior area of the pond.</p>	 A wide-angle photograph showing the interior of a large, dark-colored pond. The ground is heavily eroded with numerous tire tracks. In the background, a yellow excavator is visible on a slope, and a red safety line is stretched across the area. The sky is clear and blue.
<p>Photograph No. 14 Typical northeast interior slope.</p>	 A photograph of a steep, dark-colored slope. A small body of water is visible on the left side. In the background, there are power lines and a clear blue sky. The slope shows signs of erosion and tire tracks.
<p>Photograph No. 15 Bottom ash and plant operations discharge pipes.</p>	 A close-up photograph showing several large, dark-colored pipes. Water is being discharged from one of the pipes, creating a splash. The pipes are situated on a dark, eroded slope. A metal railing and a yellow safety cap are visible in the foreground.

Photograph No. 16
Northeast interior slope
at the discharge pipes.



<p>Photograph No. 17</p> <p>Overall view of the riprap blanket (looking east).</p>	 A wide-angle photograph showing a large expanse of grey riprap (crushed stones) in the foreground and middle ground. In the background, there is a line of trees and a body of water under a clear sky.
<p>Photograph No. 18</p> <p>Exterior slope and riprap blanket (looking north).</p>	 A photograph showing a grassy slope in the foreground leading up to a wide, flat area covered in grey riprap. The background features a line of trees and a clear blue sky.
<p>Photograph No. 19</p> <p>View of the exterior slope and toe (looking north)</p>	 A photograph showing a grassy slope in the foreground. The slope leads down to a toe area. The background shows a line of trees and a clear blue sky.

<p>Photograph No. 20 Exterior slope (looking south).</p>	 A wide-angle photograph showing a grassy hillside under a clear blue sky. The slope is covered in green and brown grass, with a line of bare trees visible in the distance.
<p>Photograph No. 21 Minor depression.</p>	 A close-up photograph of a small, shallow depression in the ground. The depression is filled with a layer of small, light-colored gravel and is surrounded by dry, brown grass and twigs.
<p>Photograph No. 22 Access road along the slope.</p>	 A photograph of a gravel access road that runs along the side of a grassy slope. The road is made of light-colored gravel and leads towards a line of trees in the background under a clear blue sky.

<p>Photograph No. 23 Minor erosion.</p>	
<p>Photograph No. 24 Exterior slope south side (looking west).</p>	
<p>Photograph No. 25 View of the exterior slope south side.</p>	

Photograph No. 26
Outfall to the outlet
channel and Ohio
River.



Photograph No. 27
View of the outlet
channel.



Photograph No. 28
Principal spillway
structure.



Photograph No. 29
Crest and saddle dam
(looking west).



Photograph No. 30
Interior slope (looking
west).

