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

WRITER'S DIRECT DIAL NO:
740-897-7768

November 15, 2022

Delivered Electronically

Ms. Laurie Stevenson
Director
Ohio Environmental Protection Agency
50 West Town Street, Suite 700
P.O. Box 1049
Columbus, OH 43216-1049

Re: Ohio Valley Electric Corporation
Kyger Creek Station
Notification of CCR Rule Information Posting
Annual Certified CCR Surface Impoundment Inspection Report

Dear Ms. Stevenson:

As required by 40 CFR 257.106(g), the Ohio Valley Electric Corporation (OVEC) is providing notification to the State Director of the Ohio Environmental Protection Agency that a qualified professional engineer has completed the Annual CCR Surface Impoundment Inspections for the 2022 operating year in accordance with 40 CFR 257.83(b) for OVEC's Kyger 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 OVEC's publicly accessible internet site at: http://www.ovec.com/CCRCompliance.php

If you have any questions, or require any additional information, I can be reached at (740) 897-7768.

Sincerely,

Tim Fulk

Tim Fulk
Energy and RTO Supervisor

TLF:jdg

2022 Annual Dam and Dike Inspection Report

Bottom Ash Pond Complex

South Fly Ash Pond

Kyger Creek Plant

Ohio Valley Electric Corporation (OVEC)

Gallia County, Ohio

October 2022

Prepared for: Ohio Valley Electric Corporation (OVEC)
3932 U.S. Route 23
P.O. Box 468
Piketon, Ohio 45661

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

AMERICAN ELECTRIC POWER℠
BOUNDLESS ENERGY℠

GERS -22-030

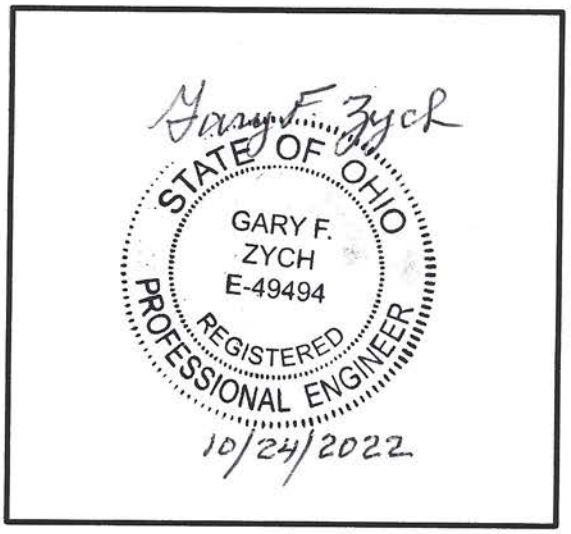
2022 Annual Dam and Dike Inspection Report

Kyger Creek Plant
Bottom Ash Pond Complex & South Fly Ash Pond
Date of Inspection: October 10, 2022
Document Number: GERS-22-030

PREPARED BY Gary F. Zych DATE 10/20/2022
Gary F. Zych, P.E.

REVIEWED BY B. G. Palmer DATE 10/21/2022
Brian G. Palmer, P.E.

APPROVED BY _____ DATE **10/26/2022**
Matthew T. Usher, P.E.
Director – AEP Mechanical,Chemical,Civil Engineering Department



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

List of Tables

List of Figures

Attachment

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 Ohio Department of Natural Resource (ODNR), Division of Water Resources Dam Safety Program and to provide Ohio Valley Electric Corporation (OVEC) and Kyger Creek Station with an evaluation of the facility.

Mr. Paul Hutchins, of the Kyger Creek Station provided onsite coordination for inspection activities. The inspection was performed on October 10, 2022 by Mr. Gary Zych of AEPSC Geotechnical Engineering with Mr. Paul Hutchins. Weather conditions was sunny, with temperatures in mid-50's F to upper 70's F. Rainfall for the 7 days preceding the inspection was 0.0 inches.

2.0 DESCRIPTIONS OF IMPOUNDMENTS

Figure 1 depicts the location of the Kyger Creek plant and its ash ponds.

2.1 BOTTOM ASH POND COMPLEX

The Bottom Ash Complex consists of a Boiler Slag Pond (BSP) and a Clearwater Pond (CWP) separated by a Splitter Dike shown on the Location Map. The Ohio River runs parallel to the east dike and OH State Route 7 runs parallel to the west dike. The Bottom Ash Complex is located between SR 7 and Kyger Creek to the west and Ohio River to the east. Kyger Creek also runs parallel to the south section of the dike. The ODNR Inventory Number is 8712-014. The crest of the dike is elevation 582.

2.2 SOUTH FLY ASH POND

The South Fly Ash Pond is one of two ash ponds that make up the Fly Ash Complex and which are separated by a splitter dike as shown on the Location Map. The second pond is the North Pond which has been capped and closed as part of the North Ash Pond Closure Project (1999). The South Fly Ash Pond is open and active as a part of the plant's operations. Sluicing of fly ash to the pond ceased in September 2022 and only receives discharges from plant sumps, coal pile runoff and other miscellaneous flows. The South Fly Ash Pond is located adjacent and west of SR 7 and just north of the Kyger Creek. The ODNR inventory number is 8712-013. The crest of the dike is elevation 590.

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

A review of available information regarding the status and condition of the Bottom Ash Pond Complex and the South Fly Ash Pond, including files available in the operating record, such as design and construction information, previous periodic structural stability assessments, previous 7-day inspection reports, and previous annual inspections, has been conducted. Based on the review of the data there were no signs of actual or potential structural weakness or adverse conditions.

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

4.1 DEFINITIONS OF VISUAL OBSERVATIONS AND DEFICIENCIES

This summary of the visual observations uses terms to describe the general appearance or condition of an observed item, activity or structure. The meaning of these terms is 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/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's 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 identified in the previous inspections, but have not been corrected.

Excessive: A reference to an observed item (e.g., erosion, seepage, vegetation, etc.) where the current maintenance condition is above 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.

This document also uses the definition of a "deficiency" as referenced in the CCR rule section §257.83(b)(5) Inspection Requirements for CCR Surface Impoundments. This definition has been assembled using the CCR rule preamble as well as guidance from MSHA, "Qualifications for Impoundment Inspection" CI-31, 2004. These guidance documents further elaborate on the definition of deficiency. Items not defined as a deficiency are considered maintenance or items to be monitored.

A "deficiency" is some evidence that a dam has developed a problem that could impact the structural integrity of the dam. 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 of an embankment is a large scale movement of part of the dam. Common signs of displacement are cracks, scarps, settlement, bulges, depressions, sinkholes and slides.

3. Blockage of Water Control Features

   Blockage of Water Control Features 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.

4.2 BOTTOM ASH POND COMPLEX

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

No modifications have been made to the geometry of the Bottom Ash Pond Complex diking system since the last annual inspection. The geometry of the impoundment has remained essentially unchanged.

The plant is making changes to the ash handling system. The CCR material in boiler slag pond area of the complex has been removed from the western portion of the pond. Sluicing operations are confined to the eastern portion of the pond.

4.2.2 INSTRUMENTATION (257.83(b)(2)(ii))

Piezometers are the only instrumentation installed in the Bottom Ash Pond Complex. The locations of the piezometers are shown on Figure 1. The maximum recorded readings of each piezometer since the previous annual inspection is shown in Table 1. The range of the piezometer levels during the past year are consistent with the historical range. The piezometers are influenced by high water levels in the Ohio River. The maximum recorded levels for piezometers noted below with (*) coincide with elevated river conditions. Comments on the summary sheet of the readings also indicate flooding/icing that prevented readings in February for piezometers KC - 1016/1018/1021. The piezometer data and pond levels are shown on Figure 3.

Table 1 - Maximum recorded instruments reading since the previous annual inspection (BAP)

INSTRUMENTATION DATA Bottom Ash Pond Complex			
Instrument	**Type**	**Maximum Reading since last annual inspection**	**Date of reading**
KC-1015*	Piezometer	552.47	2/27/2022
KC-1016	Piezometer	540.5	5/28/2022
KC-1017*	Piezometer	551.79	2/27/2022
KC-1018	Piezometer	540.5	3/29/2022
KC-1021	Piezometer	541.52	5/28/2022
KC-1022*	Piezometer	552.54	2/27/2022

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

Table 2 is a summary of the minimum, maximum, and present depth and elevation of the impounded water and 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. The data reflects the results of the CCR removal operations.

Table 2 Summary of Relevant Storage Information (BAP)

IMPOUNDMENT CHARACTERISTICS- Bottom Ash Pond Complex		
	Boiler Slag Pond	**Clearwater Pond**
Approximate **Minimum** depth (elevation) of impounded water since last annual inspection	0.0 ft. (541)	8.1 ft. (549.1)
Approximate **Maximum** depth (elevation) of impounded water since last annual inspection	17 ft. (558)	9 ft. (550.0)
Approximate **Present** depth of impounded water at the time of inspection	1.0 ft. (557.6)	8.16 ft. (549.16)
Approximate **Minimum** depth (elevation) of CCR since last annual inspection	0 ft. (541)*	N/A.
Approximate **Maximum** depth (elevation) of CCR since last annual inspection	~39 ft. (570)*	N/A
Approximate **Present** depth (elevation) of CCR at the time of inspection	Varies *	N/A
Storage Capacity of impounding structure at the time of inspection	610 ac-ft.	310 ac-ft.
Approximate volume of impounded water at the time of inspection	~125 ac-ft.	~53 ac-ft.
Approximate volume of CCR at the time of the inspection	~300 ac-ft*	N/A

*The minimum and maximum levels of CCR material exist at the same time as part of operations of the pond.

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

A visual inspection of the Bottom Ash Pond Complex 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 Bottom Ash Pond and Clear Pond, and pipe discharge structure.

Overall, the facility is in good condition and is being well maintained. The impoundment is functioning as intended with no signs of potential structural weakness or conditions which are disrupting to the safe operation of the impoundment. Inspection notes and location of photographs are also shown on Figure 1. Inspection photos are included in Attachment A.

- The exterior slope of the north dike appears to be in fair condition with no visible signs of cracks, settlement, or movement. The vegetation on the exterior slope was in fair condition since it has not been mowed as recently as the rest of the exterior slopes. Trees that were noted along the exterior toe area of the western portion of the north dike in the last inspection report have been removed.
- The exterior slopes of the remaining diking system have been recently mowed and are in good condition (photos 1-6). There were no signs of instability of the dike. No seepage or soft areas were observed during the inspection. No rutting was observed along the crest of the dikes.
- The CCR material in the western portion of the BSP has been removed. The interior slopes appear stable and minor erosion rills have developed but these will be regraded as construction within this area continues (photo 7).
- A seepage area on the interior slope of the north dike was observed (photo 8). Some evidence of erosion due to the seepage was observed at the toe but not significant. The source of the seepage is unknown at this time since the zone is above the surrounding grade and no source of pond water exists. This is in the area where the influent pipes previously discharged into the pond.

- The decant structure between the Boiler Slag Pond and the Clearwater Pond has been removed as part of the construction project. The discharge pipe into the Clearwater Pond is temporarily plugged and will also be removed.
- The interior slopes of the Clearwater Pond appeared stable and in good condition. The vegetation has not been mowed recently because the plant is having that piece of equipment repaired. The plant plans on mowing as soon as the equipment is operational.
- The overflow decant structure concrete, access deck, and walkway stairs in the Clearwater Pond appeared good, stable, and functioning as designed.
- The Outfall located adjacent to the Clearwater Pond that discharges water to the Ohio River appeared well protected from erosion and in satisfactory condition with proper outflow. Access to the outfall is difficult due to steep slope but a path is cleared.
- The eastern portion of the BSP is still receiving sluiced bottom ash while CCR removal operations are continuing (photo 9). There is very little ponded water in the BSP due to the construction activities.

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 Bottom Ash Pond Complex since the last annual inspection that would affect the stability or operation of the impounding structure.

The CCR removal operations have not impacted the diking system.

4.3 SOUTH FLY ASH 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 South Fly Ash Pond since the last annual inspection. The geometry of the impoundment has remained essentially unchanged.

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

Piezometers are the only instrumentation installed in the South Fly Ash Pond. The locations of the piezometers are shown on Figure 2. The maximum recorded readings of each piezometer since the previous annual inspection is shown in Table 3. The range of the piezometer levels during the past year are consistent with the historical range. The piezometers are influenced by high water levels in the Ohio River. The piezometer data and pond levels are shown on Figure 4.

Table 3 Maximum recorded instruments reading since the previous annual inspection (FAP)

INSTRUMENTATION DATA **South Fly Ash Pond**			
Instrument	**Type**	**Maximum Reading since last annual inspection**	**Date of reading**
KC-1003	Piezometer	576.29	12/30/2021
KC-1004	Piezometer	553.09	2/27/2022
KC-1007	Piezometer	581.03	2/27/2022
KC-1008	Piezometer	556.81	12/30/2021
KC-1011	Piezometer	566.79	2/27/2022
KC-1012	Piezometer	561.27	2/27/2022

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

Table 4 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 (FAP)

IMPOUNDMENT CHARACTERISTICS **South Fly Ash Pond**	
Approximate **Minimum** depth (elevation) of impounded water since last annual inspection	18.0 ft. (583.0)
Approximate **Maximum** depth (elevation) of impounded water since last annual inspection	18.6 ft. (583.6)
Approximate **Present** depth (elevation) of impounded water since last annual inspection	18.0 ft. (583.0)
Approximate **Minimum** depth (elevation) of CCR since last annual inspection	~15.0 ft.* (565.0)
Approximate **Maximum** depth (elevation) of CCR since last annual inspection (ft.)	~36 ft.* (586.0)
Approximate **Present** depth (elevation) of CCR since last annual inspection	Varies* (15-36 ft)
Storage Capacity of impounding structure at the time of the inspection	2,500 ac-ft
Approximate volume of impounded water at the time of the inspection	~420 ac-ft
Approximate volume of CCR at the time of the inspection	~1,800 ac-ft

*The minimum and maximum levels of CCR material exist at the same time as part of operations of the pond.

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

A visual inspection of the South Fly Ash Pond was conducted to identify any signs of distress or malfunction of the impoundment and appurtenant structures. Specific items inspected included all elements of the dam such as inboard and outboard slopes, crest, and toe; as well as appurtenances such as the outlet structure and pipe discharge structure. As stated earlier, the plant ceased sluicing fly ash into the South FAP in September 2022.

Overall, the facility is in good condition. The impoundment is functioning as intended with no signs of potential structural weakness or conditions which are disrupting to the safe operation of the impoundment. Inspection notes and location of photographs are also shown on Figure 2. Inspection photos are included in Attachment A.

- The water level in the FAP has been slowly dropping due to the reduced influent to the pond. Photos 1-2 show the exposed ash delta and pool area.
- The crest and slopes of the north dike between the north and south ponds showed no signs of any significant settlement, deformation, or cracks.
- The overall condition of the west dike exterior slope consists of several sections with the inverted filter blanket with stone cover to control previous seepage areas. There were no new signs/evidence of additional seepage. The slope appeared in good and stable condition. The vegetative cover on the slope was recently mowed and in good condition (photos 3-4).
- The exterior slope of the east dike appeared in good condition. The rock blankets (repair areas) along the slope appeared stable and well maintained (photo 5).
- Tall vegetation was observed between the crest of the east dike and the abandoned ash sluice pipelines on the exterior slope.
- Heavy vegetation was observed around the discharge inlet at the southeast corner. The walkway over the discharged was in fair condition.
- The interior slopes of the entire diking system appeared to be in fair condition. The vegetation was not mowed recently due to equipment issues as discussed above. The crest had no signs of distress and no significant rutting along the road.
- The access structure platform, deck, and handrail to the outlet structure appeared in fair and stable condition. The visible concrete, railings, metal deck, stop logs, and accessories appeared in functional condition. Flow over the stoplog was smooth and unobstructed (photo 6).
- The exterior slope of the south dike appeared to be in satisfactory condition. The toe area below the south dike has been used as a temporary construction laydown area and will need to be regraded to properly drain when work is complete.
- The drainage channel located at the toe of the west slope indicated positive drainage but consists of thick brush and vegetation growth. The heavy vegetation limits the ability to inspect the area and should be cut. The discharge pipe appeared to have unobstructed flow under the perimeter road.

4.3.5 CHANGES THAT AFFECT STABILITY OR OPERATION (257.83(b)(2)(i))

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

5.0 SUMMARY OF FINDINGS

5.1 GENERAL OBSERVATIONS

The following general observations were identified during the visual inspection:

Bottom Ash Pond Complex

1) The interior and exterior slopes and crest of the dikes were generally in satisfactory and stable condition. The dikes did not show any signs of structural weakness or instability. The vegetation along the downstream slopes of the dikes were recently mowed in most locations. The crest did not contain any significant ruts or other signs of instability.

2) The outlet structure from the Clear Water Pond were generally in good condition. There were no signs of deterioration of the concrete or steel structures. Spare stop logs were available for use. The outfall appeared to be functioning without obstruction.

South Fly Ash Pond

1) The interior and exterior slopes and crest of the dikes were generally in good and stable condition. The dikes did not show any significant signs of structural weakness, distress or instability. The vegetation along the exterior slopes were recently mowed in most locations. The crest did not contain any ruts or other signs of instability.

2) Overgrown vegetation was present along toe of the west exterior slope and drainage channel.

3) The outlet structure from the South Fly Ash Pond was in generally in good condition. There were no signs of deterioration of the concrete or steel structures. Flow appeared unobstructed.

4) The toe ditch (in the SR 7 right-of-way) at the east dike downstream slope is functioning with positive flow.

5.2 MAINTENANCE ITEMS

The following maintenance items were identified during the visual inspection.

Bottom Ash Pond Complex

1) The plant is actively performing maintenance in controlling vegetation along the crest and the exterior embankment slopes. Vegetation was observed within the interior embankment slopes that should be mowed as soon as the equipment is operational.

South Fly Ash Pond

1) The plant is actively performing maintenance in controlling vegetation along the crest and the exterior embankment slopes. Vegetation was observed within the interior embankment slopes that should be mowed as soon as the equipment is operational

2) The area along drainage channel at the west embankment toe exhibited excessive vegetation. The vegetation should be periodically mowed to prevent woody vegetation or control growth through the application of herbicide to facilitate inspection of these areas.

5.3 ITEMS TO MONITOR

The following items were identified during the visual inspection as items to be monitored, see inspection map for locations:

Bottom Ash Pond Complex

1) None

South Fly Ash Pond

1) Continue to monitor wet areas previously observed and mitigate any additional areas with the installation of rock blankets using the approved ODNR detail for controlling seepage areas along embankment slope. If conditions change flow rate increases or the seep water is not clear it should be brought to the immediate attention of AEP-Geotechnical Engineering.

2) The plant should continue periodic monitoring of the seepage area beyond the south toe for movement of sediments or uncontrolled/significant changes to discharge.

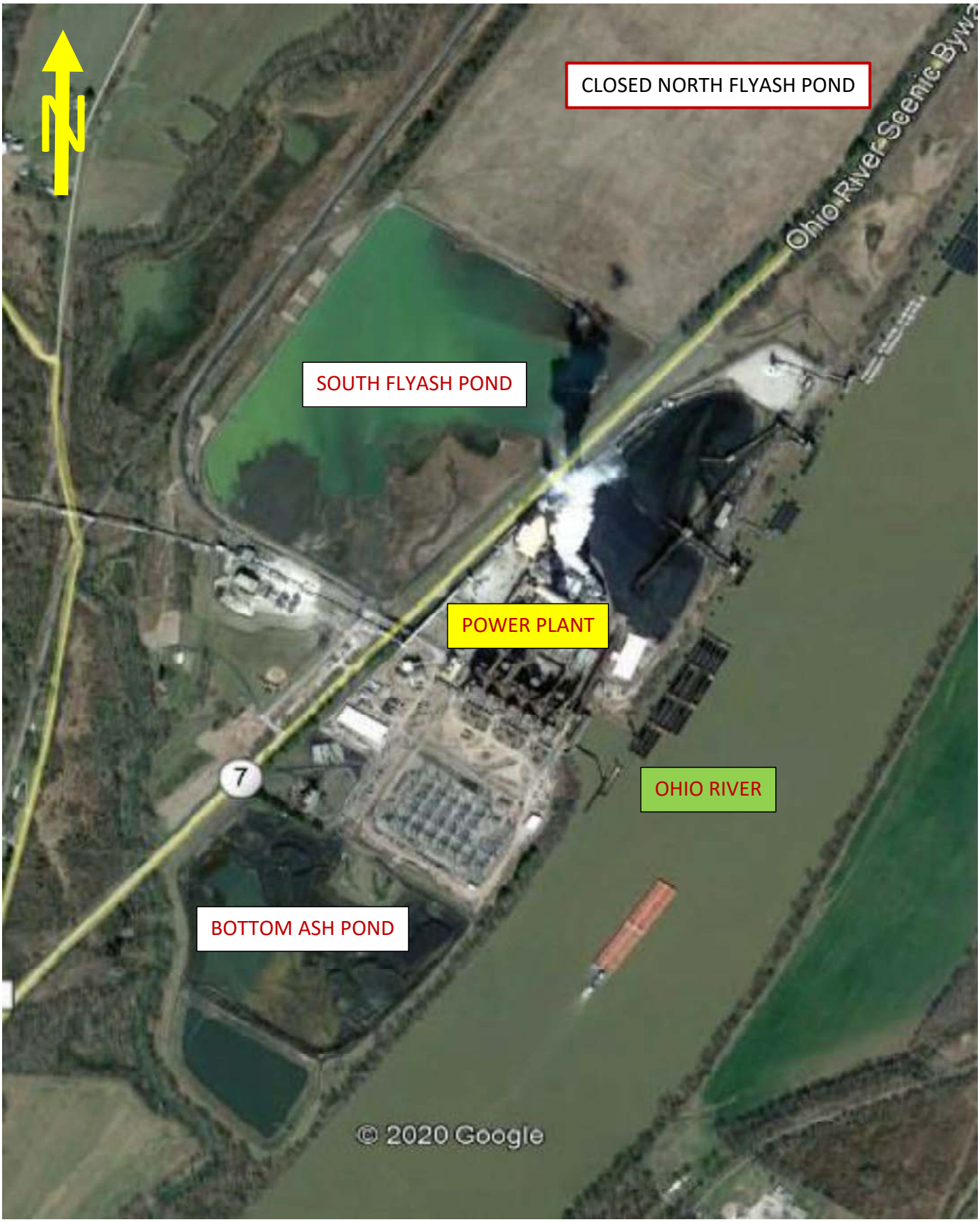
5.4 DEFICIENCIES (257.83(b)(2)(vi))

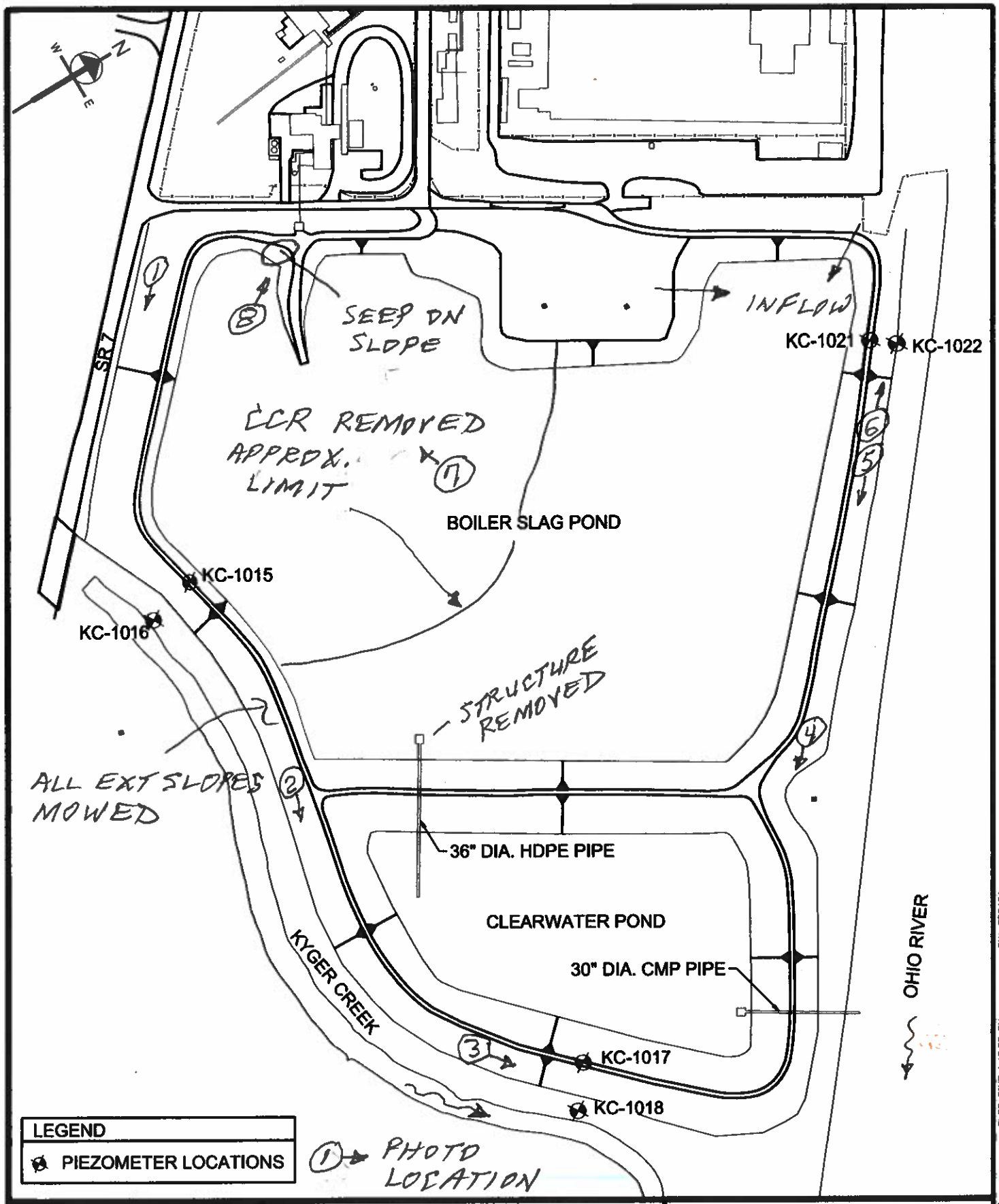
There were no signs of structural weakness or disruptive conditions that were observed at the time of the inspection that would require additional investigation or remedial action. There were no deficiencies noted during this inspection or during any of the periodic 7-day inspections. A deficiency is defined as either 1) uncontrolled seepage, 2) displacement of the embankment, 3) blockage of control features, or 4) erosion, more than minor maintenance. If any of these conditions occur before the next annual inspection contact AEP Geotechnical Engineering immediately.

Figures

SITE LOCATION MAP

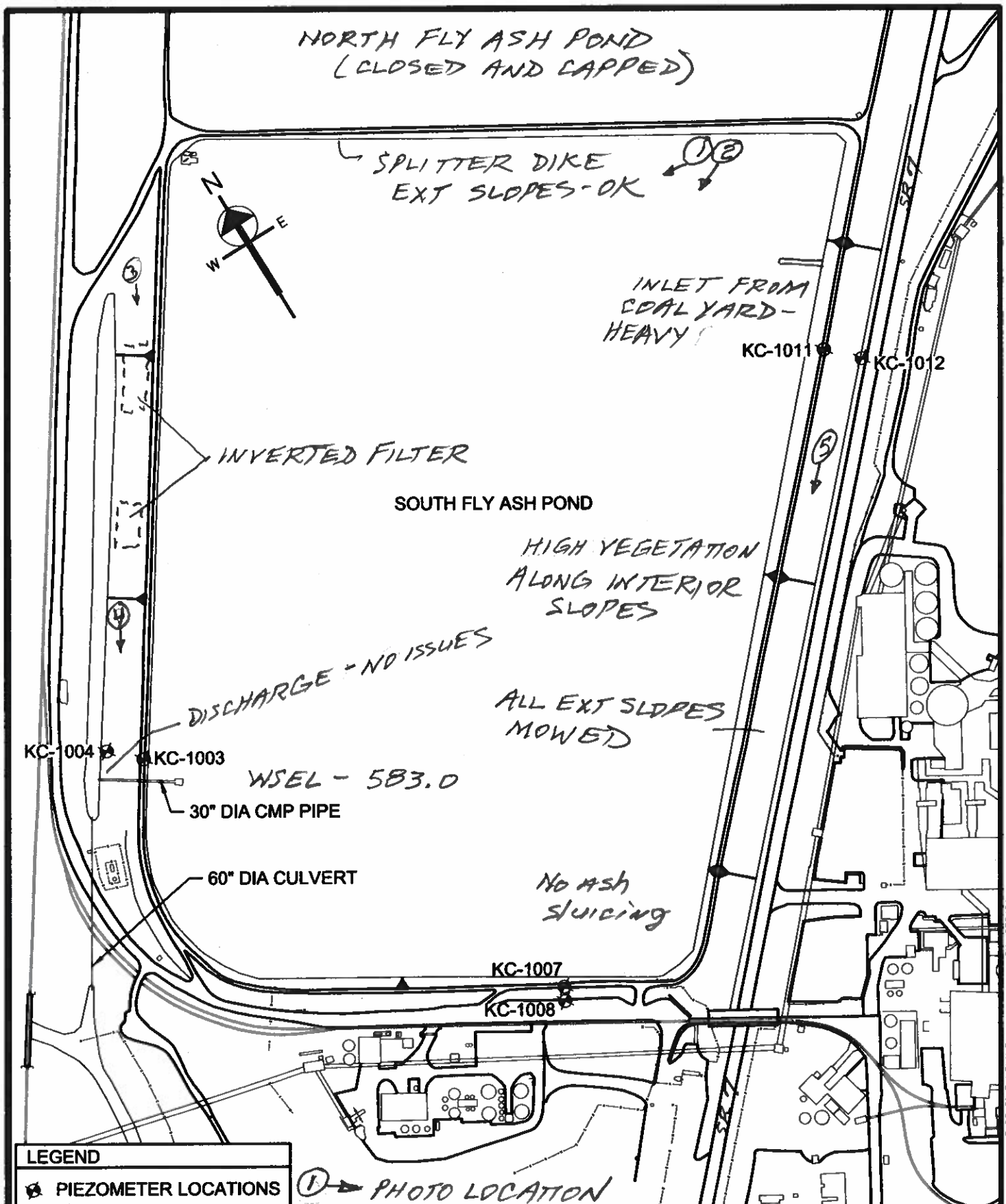
Kyger Creek Plant, Cheshire, OH





DRN BY: INSP DATE	KYGER CREEK POWER STATION	DWG NO: FIGURE 1
DATE: 10/10/2022	SHEET 1 OF 1	AEP AMERICAN ELECTRIC POWER
SCALE:1"=250'	BOTTOM ASH POND COMPLEX	AEP SERVICE CORP. 1 RIVERSIDE PLAZA COLUMBUS, OH 43215

PLOT DATE: 11/14/2016 PLOT TIME: 11:47:07 PM BY: e259464



DRN BY: INSP DATE	KYGER CREEK POWER STATION	DWG NO: FIGURE 2
DATE: 10/10/2022	SHEET 1 OF 1	AEP AMERICAN ELECTRIC POWER
SCALE:1"=300'	SOUTH FLY ASH POND	AEP SERVICE CORP. 1 RIVERSIDE PLAZA COLUMBUS, OH 43215

PLOT DATE: 11/14/2016 PLOT TIME: 10:11 PM BY: a259464

Figure 3 - Bottom Ash Pond Piezometer Data.

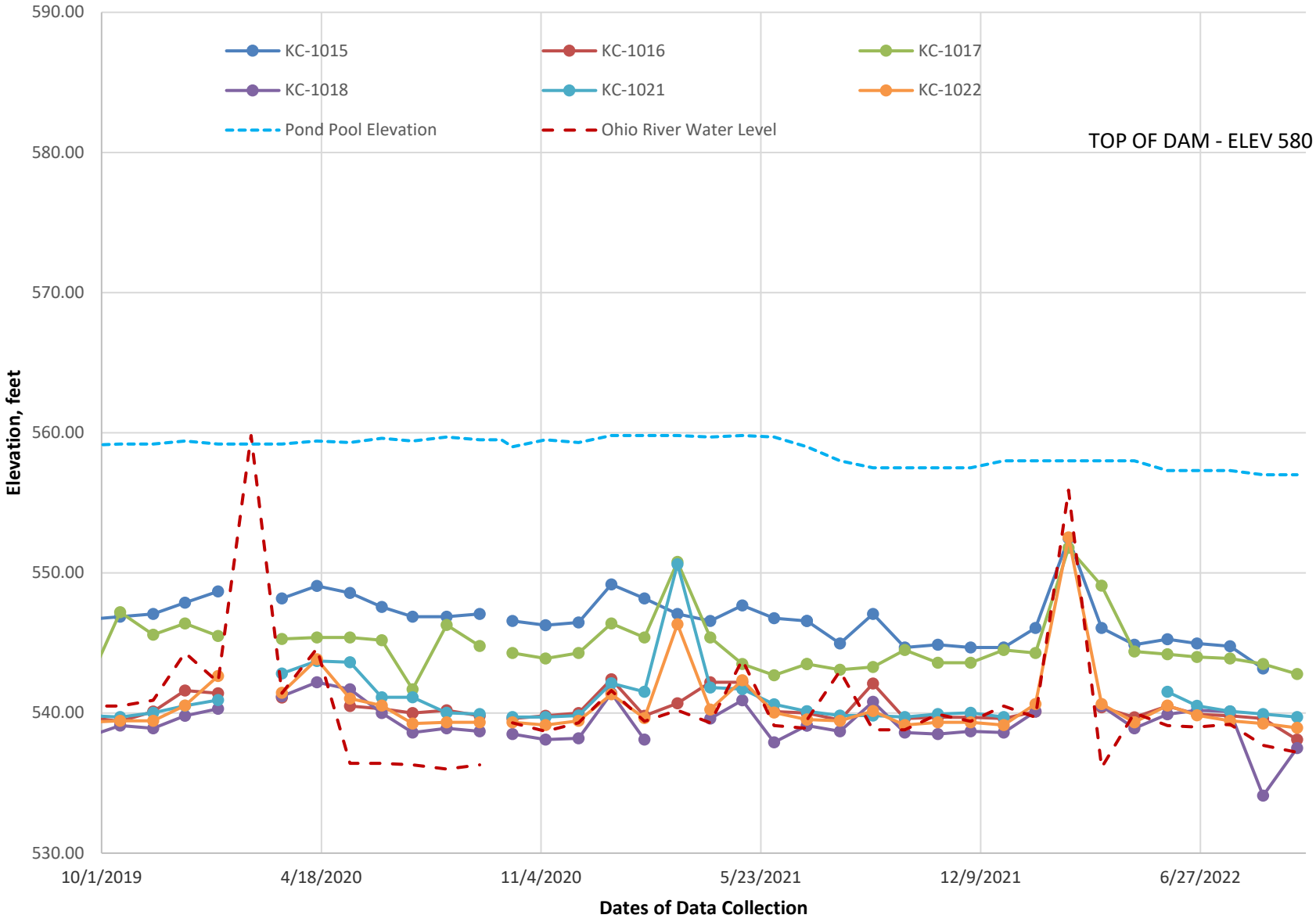
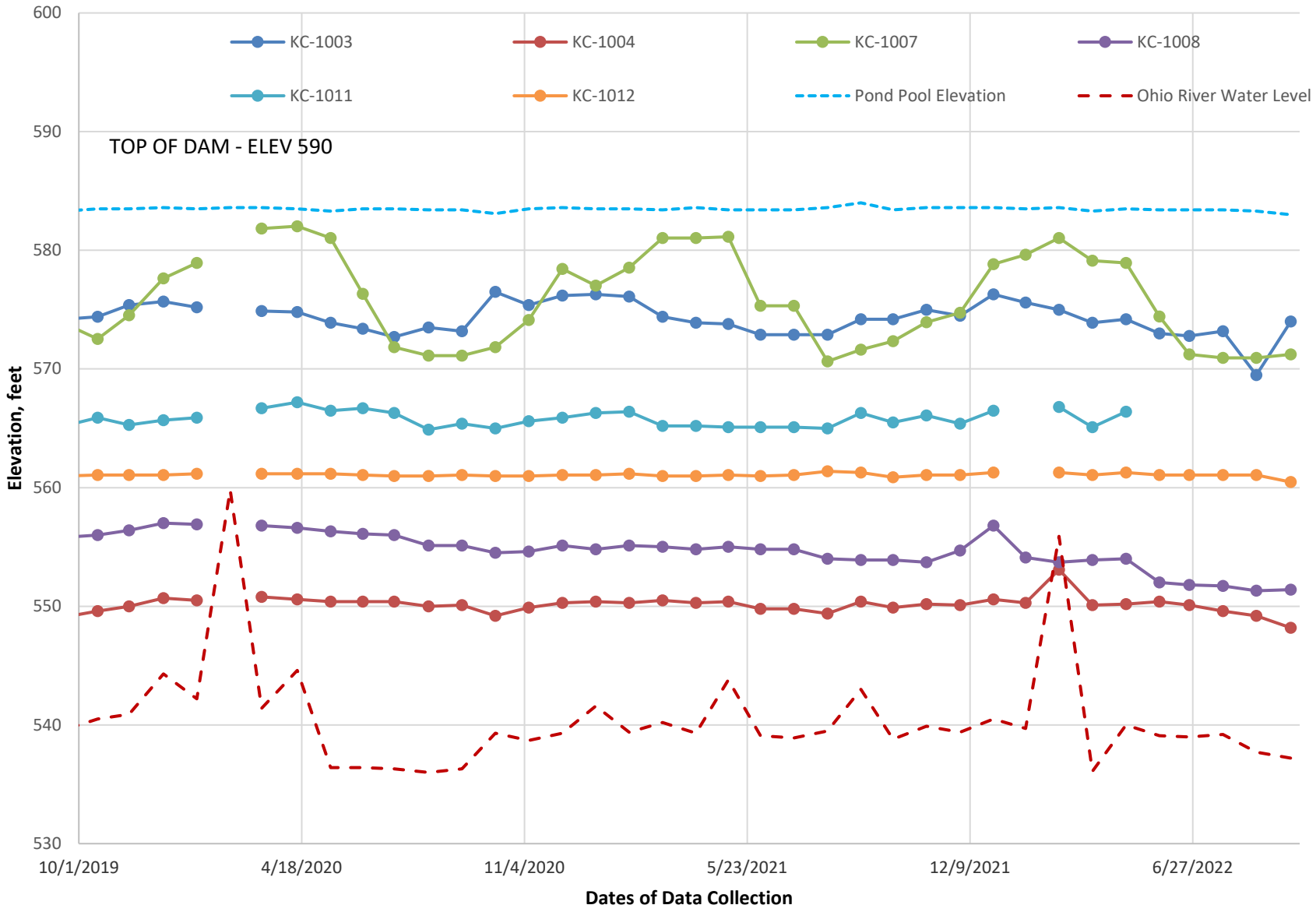


Figure 4 - South Flyash Pond Piezometer Data.



Attachment A

Inspection Photographs

BAP #1 – exterior slope west dike– looking south

BAP #2 – exterior slope of south dike-looking southeast

BAP #3 –exterior slope of south dike-looking east

BAP #4 – exterior slope of east-looking south

BAP #5 –exterior slope of east dike-looking south

BAP #6 – exterior slope of east dike-looking north

BAP #7 – interior of west portion of BSP

BAP #8 – seepage-interior slope of north dike

BAP #9 – interior-eastern portion of BSP

SFAP #1 – interior view of pond

SFAP #2 – interior view of pond

SFAP #3 –exterior slope of west dike-looking south

SFAP #4 – exterior slope of west dike-looking south

SFAP #5 –exterior slope of east dike-looking south

SFAP #6 – outlet structure- smooth flow over stoplog