



OHIO VALLEY ELECTRIC CORPORATION

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WRITER'S DIRECT DIAL NO:
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February 1, 2024

Submitted Electronically

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

**Re: Ohio Valley Electric Corporation
Kyger Creek Station
Notification of CCR Rule Information Posting
Annual Certified CCR Dam and Dike (Surface Impoundment)
Inspection Report Posting**

Dear Ms. Vogel:

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 Dam and Dike (Surface Impoundment) Inspection for the 2023 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 publicly 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, please call me at 740-289-7259.

Sincerely,

A handwritten signature in black ink that reads "Jeremy Galloway". The signature is written in a cursive, flowing style.

Jeremy Galloway
Environmental Specialist

JDG:tlf



**2023 CCR Rule – Surface Impoundments
Kyger Creek Dam/Dike Inspections**



Kyger Creek Generating Station
Cheshire, Ohio
Gallia County

January 19, 2024

Prepared for:

Ohio Valley Electric Corporation
Piketon, Ohio

Prepared by:

Stantec Consulting Services Inc.
Cincinnati, Ohio

Sign-off Sheet

This document entitled 2023 CCR Rule – Surface Impoundments, Kyger Creek Dam/Dike Inspections was prepared by Stantec Consulting Services Inc. (“Stantec”) for the account of Ohio Valley Electric Corporation (OVEC) (the “Client”). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec’s professional judgment in light of the scope, schedule, and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use that a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Pleiman, Darren

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Darren
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Darren Pleiman, P.E.

Reviewed by James A Samples

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James Samples, E.I.

Reviewed by Jacqueline S. Harmon

(signature)

Jacqueline S. Harmon, P.E.



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2023 CCR RULE – SURFACE IMPOUNDMENTS KYGER CREEK DAM/DIKE INSPECTIONS

Overview

January 19, 2024

1.0 OVERVIEW

Stantec Consulting Services Inc. (Stantec) performed an annual inspection of the existing coal combustion residuals (CCR) surface impoundments at the Kyger Creek Generating Station in Cheshire, Ohio on November 2, 2023.

This annual dam and dike inspection is intended to fulfill the requirements of 40 CFR 257.83(b) for the *Disposal of Coal Combustion Residuals from Electric Utilities* rule (CCR Rule) signed by the U.S. Environmental Protection Agency (EPA) Administrator on December 19, 2014 and published in the Federal Register on April 17, 2015, as well as the Ohio Department of Natural Resources (ODNR), Division of Water Resources Dam Safety Program.

This report provides an existing conditions assessment with observations, photographs, maintenance recommendations, and conclusions. The weather conditions at the time of inspection consisted of clear sunny skies with temperatures ranging from the mid to upper 30s to the low to mid 50s (Fahrenheit). Based on regional records, up to about 0.6 inches of precipitation fell within the week prior to the inspection.

Stantec's team that performed the fieldwork included:

- Jacqueline Harmon, P.E., Principal, Project Manager
28 years of experience in geotechnical engineering, including pump stations, levees, and CCR storage facility design, closure, and operation.
- James Samples, E.I., Project Engineer/Geotechnical Engineer
5 years of geotechnical engineering experience for supervision of geotechnical field explorations, slope stability, and landslide remediation.

Fieldwork was coordinated with Paul Hutchins, Kyger Creek Station's landfill manager. Mr. Hutchins tracks the maintenance needs and activities through the weekly and monthly inspections. Jeremy Galloway and Zachary Hammond of Ohio Valley Electric Corporation's (OVEC) Environmental Affairs group accompanied Stantec's personnel during the inspection. Observations were briefly discussed with onsite personnel during and after completion of the field activities.

2.0 DESCRIPTION OF KYGER CREEK IMPOUNDMENTS

The Kyger Creek Generating Station is a coal-combustion generating station located in Cheshire, Gallia County, Ohio. It is owned and operated by OVEC. The Kyger Creek Station began operating in 1955. It has five generating units with a total capacity of 1,086 megawatts.

The annual assessment included two CCR surface impoundments: the Boiler Slag Pond (BSP) and the South Fly Ash Pond (SFAP).

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Description of Kyger Creek Impoundments
January 19, 2024

2.1 BOILER SLAG POND

The BSP is part of the Bottom Ash Pond Complex, located about 1,300 feet southwest of the power plant between State Route 7 and the Ohio River. The complex is bounded by State Route 7 to the west, a substation and plant road to the north, the Ohio River to the east, and Kyger Creek to the south. A station overview is included in Appendix A.

The Bottom Ash Pond Complex perimeter embankment is approximately 5,800 feet in length with a splitter dike about 875 feet long, dividing the complex into the BSP and the Clearwater Pond. The top of the perimeter embankment is approximately elevation 582 feet with a maximum height of 27 feet relative to adjacent topography (Stantec 2016a). It is registered with the Ohio Department of Natural Resources (ODNR) as a Class II dam, ID No. 8721-014.

Recently completed construction has divided the BSP into the new low-volume wastewater treatment system (LVWTS) and the redefined BSP closure area. The LVWTS includes a primary and a secondary basin. A boiler slag handling system (BSHS) was constructed just north of the BSP footprint. Cross sections of the embankment show the upstream and downstream slope are constructed at 2.5H:1V with a 10-foot-wide crest. In the area of the LVWTS, the top of the existing embankment was lowered to elevation 575 feet. Reference drawings are provided in Appendix B.

The old BSP outlet structure to the Clearwater Pond was removed. For the LVWTS, a 48-inch diameter HDPE pipe was placed at about elevation 551.5 feet from the primary to the secondary basin. The secondary basin discharges to the Clearwater Pond through a 36-inch diameter HDPE pipe placed at about elevation 550.0 feet. The Clearwater Pond discharges through the existing 30-inch CMP to the NPDES-permitted outfall into the Ohio River. Water levels within the remaining boiler slag pond closure area are maintained by pumping (Burns & McDonnell 2023).

The BSHS was installed as part of the facility's Effluent Limitation Guideline (ELG) compliance program. It became fully operational on March 24, 2023. Kyger Creek Station no longer sluices boiler slag directly to onsite ponds. Initial discharge from the LVWTS occurred on July 17, 2023 (OVEC 2023g, 2023h; OEPA 2023, 2022a, 2022b).

2.2 SOUTH FLY ASH POND

The SFAP is located about 500 feet west/northwest of the power plant. It is bounded to the east by State Route 7, the closed North Ash Pond to the north, a railroad line and plant road to the west, and a plant road and flue gas desulfurization (FGD) wastewater treatment plant to the south (Stantec, 2016b). A station overview is included in Appendix A.

The SFAP perimeter embankment is approximately 6,750 feet in length and encompasses approximately 67.7 acres. The top of the dike is located at about elevation 590 feet with a maximum height of 40 feet relative to adjacent topography. Cross sections show the upstream slopes are constructed at 1.75H:1V

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and the downstream slopes are 2.5H:1V with a 10-foot-wide crest (Stantec 2016b). It is registered with ODNR as a Class II dam, ID No. 8721-013.

The SFAP historically received process water for settling and storage of CCR. Sluicing of fly ash to the pond ceased in September 2022, reducing inflows from plant sumps, coal pile runoff and other miscellaneous flows (AEPSC 2022). Flows were historically conveyed to the SFAP by a 42-inch by 39-inch concrete riser structure located in the southeastern corner. No flows were observed the day of the site visit.

As part of the ELG compliance construction for the LVWTS, piping was installed connecting the coal pile runoff pond and the LVWTS. The piping crosses State Route 7 and is installed in the eastern dike of the SFAP, crossing back to the station near the northern end of the eastern dike. See Appendix B for reference drawings. A segment of piping is also shown placed in the southern dike to the fly ash handling area.

Outflow to Kyger Creek is controlled through a 30-inch diameter CMP located on the southwestern side.

3.0 OBSERVATIONS

Dam and embankment inspections were conducted in general accordance with 257.83(b) to ensure that the design, construction, operation, and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering standards. The inspection at a minimum included:

1. A review of available information regarding the status and condition of the CCR unit, including, but not limited to, files available in the operating record (e.g., CCR unit design and construction information required by 40 CFR 257.73(c)(1) and 257.74(c)(1), previous periodic structural stability assessments required under 40 CFR 257.73(d) and 257.74(d), the results of inspections by a qualified person, and results of previous annual inspections),
2. A visual inspection of the CCR unit to identify signs of distress or malfunction of the CCR unit and appurtenant structures, and
3. A visual inspection of any hydraulic structures underlying the base of the CCR unit or passing through the dike of the CCR unit for structural integrity and continued safe and reliable operation.

3.1 BOILER SLAG POND

3.1.1 Changes in Geometry Since Last Inspection (257.83(b)(2)(i))

A LVWTS has been installed in the northwest corner of the BSP (Photographs 3 and 4, Appendix D). During LVWTS construction, the crest elevation of the adjacent embankment was lowered to elevation 575 feet. CCR was excavated to the original basin design grades. The interior slopes of the embankment were flattened to 2.5:1 (horizontal:vertical) or flatter prior to construction of the two lined basins (Burns & McDonnell 2023). Reference drawings are provided in Appendix B. Modifications to the BSP geometry was complete in June 2023. The perimeter geometry of the surface impoundment has remained essentially unchanged beyond the recent construction.

**2023 CCR RULE – SURFACE IMPOUNDMENTS
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3.1.2 Instrumentation (257.83(b)(2)(ii))

Applied Geology and Environmental Science, Inc. (AGES) of Clinton, Pennsylvania manages the groundwater monitoring network at the Kyger Creek Station for OVEC. Piezometer data for the station was provided by AGES.

Sixteen piezometers/monitoring wells are associated with the BSP. Locations of the instruments are shown on excerpts from the respective reports in Appendix C (AGES 2020, 2016). The maximum recorded readings for each location within the past year are shown in Table 1.

Table 1. BSP Maximum Piezometer Readings within the Past Year

Instrument	Installation Date	Maximum Reading (ft)	Date of Reading
KC-1015	8/31/2010	543.96	7/14/2023
KC-1016	9/8/2010	540.98	1/19/2023
KC-1017	8/30/2010	546.10	2/15/2023
KC-1018	9/7/2010	540.53	1/19/2023
KC-1021 ¹	8/26/2010	--	--
KC-1022	9/1/2010	540.54	1/19/2023
KC-15-01	8/5/2015	544.11	8/8/2023
KC-15-02	8/7/2015	544.33	4/18/2023
KC-15-03	8/12/2015	545.59	4/18/2023
KC-15-04	8/12/2015	540.35	1/19/2023
KC-15-05a	8/24/2022	539.39	4/18/2023
KC-15-06	8/18/2015	543.53	4/18/2023
KC-15-07	8/11/2015	543.41	3/27/2023
KC-15-08	8/10/2015	543.31	3/27/2023
KC-19-27	4/5/2019	543.38	3/27/2023
KC-19-28	4/4/2019	543.29	3/27/2023
KC-19-29	4/3/2019	543.65	4/18/2023

Notes:

1. Piezometer KC-1021 could not be located during construction activities in 2023.

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3.1.3 Impoundment Characteristics (257.83(b)(2)(iii, iv, v))

Table 2 summarizes the BSP impoundment characteristics since the previous annual inspection.

Table 2. Summary of BSP Impoundment Characteristics

Characteristics²	2023 Values¹
Approximate Minimum Depth (Elevation) of impounded water	0.0 ft. (540.5 ft.)
Approximate Maximum Depth (Elev.) of impounded water	1.7 ft. (538.8 ft.) ³
Approximate Current Depth (Elev.) of impounded water	1.7 ft. (538.8 ft.) ³
Approximate Minimum Depth (Elev.) of CCR	0.0 ft. (540.5 ft.) ⁴
Approximate Maximum Depth (Elev.) of CCR	38.8 ft. (579.3 ft.) ⁴
Approximate Current Depth (Elev.) of CCR	Varies (0 to 38.8 ft.)
Storage Capacity of impounding structure at the time of the inspection ⁵	774,400 cy
Approximate volume of impounded water at the time of the inspection ⁶	<1,000 cy
Approximate volume of CCR at the time of the inspection	486,500 cy

Notes:

1. All values in feet (ft) or cubic yards (cy). Elevation (Elev.) is shown in feet (NAVD88).
2. Excludes LVWTS area unless noted.
3. Located within an internal stormwater management channel.
4. Based on base elevation of 540.5 ft and including the LVWTS footprint (Stantec 2016a; AEPSC 2016b).
5. Assumes water impounded within the LVWTS and the remaining BSP footprint to the minimum crest elevation.
6. Based on base elevation of 540.5 ft and neglecting the LVWTS footprint.

The primary basin was designed for a normal pool elevation of 552.50 feet, creating a storage volume of 13.74 acre-feet (22,200 cy). The secondary basin was designed for a normal pool elevation of 551.50 feet, creating a storage volume of 50.56 acre-feet (81,600 cy) (Burns & McDonnell 2023).

3.1.4 Visual Inspection (257.83(b)(2)(vi))

The visual inspection of the BSP and appurtenant structures was conducted to identify actual or potential structural weaknesses or a condition disrupting or that has potential to disrupt the operation and safety of the impoundment. Specific items observed included upstream and downstream slopes, crest of the embankment dam/dike, and inlet and outlet structures. Appendix A includes a plan view and table with inspection points identified in the field. Appendix D includes a photographic log of the conditions.

The visual inspection began with observations of the perimeter embankment and splitter dike. In general, the upstream and downstream embankment slopes appear to be in good condition. The northwest corner has woody vegetation and stumps on the exterior slope (Photograph 1, Points 1 through 3). The interior slopes around the LVWTS are newly vegetated with grass visible. Erosion rills are noted, particularly where the material changes from the road surfacing to the grassy slopes (Photographs 5 and 6, Points 5 through 7; Photographs 15 and 16). Vegetation is thin in a few areas. A potentially wet spot (Point 9) was noted

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on the slope near Kyger Creek. CCR and a bare area noted on the southern slope near the roadway (Points 10 and 11). The toe of the interior slope was excavated in the northeast corner near the historic sluice lines (Photograph 18, Points 13 and 14).

The splitter dike has an established operational road with a boiler slag surface. Monitoring wells were noted during the site visit.

No flows were noted during the site visit into the boiler slag pond closure area. Piping for the LVWTS was noted. The outlet structure for the Clearwater Pond was observed (Photograph 11). Pounded water was limited to an area at the toe of the LVWTS within the boiler slag pond closure area (Photograph 10). A pump and hose were present at the southern end.

3.1.5 Changes that Affect Stability or Operation (257.83(b)(2)(vii))

Significant construction changes to the operation and geometry of the BSP and new LVWTS system have been noted above. Based on discussions with OVEC representatives and observations made during the field inspection, there were no changes to the BSP impoundment that should affect its stability or future operational needs. Improvements and changes associated with the phased construction do not appear to affect the embankment stability. Construction of the LVWTS is complete. Points noted were maintenance items that may reflect recent construction activities and grading.

3.2 SOUTH FLY ASH POND

3.2.1 Changes in Geometry Since Last Inspection (257.83(b)(2)(i))

The SFAP dike has remained relatively unchanged since the last inspection. Pipe installation in the eastern and southern dikes did not change the embankment geometry. Reference drawings are provided in Appendix B.

3.2.2 Instrumentation (257.83(b)(2)(ii))

Nineteen piezometers/monitoring wells are associated with the SFAP. Locations of the instruments are shown on excerpts from the respective reports in Appendix C (AGES 2020, 2016). Table 3 below summarizes the maximum reading since the last annual inspection.

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Table 3. SFAP Maximum Piezometer Readings within the Past Year

Instrument	Installation Date	Maximum Reading (ft)	Date of Reading
KC-1003	8/19/2010	575.87	12/5/2023
KC-1004	8/26/2010	550.05	5/16/2023
KC-1007	8/17/2010	578.69	5/16/2023
KC-1008	8/24/2010	559.92	1/19/2023
KC-1011 ¹	8/23/2010	--	--
KC-1012	9/9/2010	560.05	12/5/2023
KC-15-09	9/15/2015	542.22	9/25/2023
KC-15-10	9/16/2015	542.38	9/25/2023
KC-15-11	8/20/2015	542.26	3/27/2023
KC-15-12	9/17/2015	542.82	8/8/2023
KC-15-13	9/1/2015	543.11	3/27/2023
KC-15-14	8/20/2015	542.98	3/27/2023
KC-15-15	9/2/2015	542.68	3/27/2023
KC-15-16	9/3/2015	542.14	9/25/2023
KC-15-17	9/3/2015	542.24	9/25/2023
KC-15-18	8/25/2015	542.00	9/25/2023
KC-15-19a ²	8/25/2022	543.04	9/25/2023
KC-15-20	8/27/2015	541.75	9/25/2023
KC-15-21	8/27/2015	541.88	9/25/2023
KC-15-22	9/10/2015	542.09	9/25/2023

Notes:

1. KC-1011 was damaged during construction activities and could not be sampled.
2. KC-15-19 noted as damaged/could not be sampled in June 2022. Replaced with well KC-15-19a August 2022 (AGES, 2023a).

**2023 CCR RULE – SURFACE IMPOUNDMENTS
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3.2.3 Impoundment Characteristics (257.83(b)(2)(iii, iv, v))

The SFAP is an inactive CCR surface impoundment. Table 4 summarizes the impoundment characteristics since the previous annual inspection.

Table 4. Summary of SFAP Impoundment Characteristics

Characteristics^{2,3}	2023 Values¹
Approximate Minimum Depth (Elev.) of impounded water	0 ft. (584.1 ft.)
Approximate Maximum Depth (Elev.) of impounded water	24.1 ft. (560 ft.)
Approximate Current Depth (Elev.) of impounded water	Varies (0 to 24.1 ft.)
Approximate Minimum Depth (Elev.) of CCR	~10 ft. (560 ft.)
Approximate Maximum Depth (Elev.) of CCR	~ 45.7 ft. (585.7 ft.)
Approximate Current Depth (Elev.) of CCR	Varies (10-45.7 ft.)
Storage Capacity of impounding structure at the time of the inspection	4,033,300 cy
Approximate volume of impounded water at the time of the inspection	5,400 cy
Approximate volume of CCR at the time of the inspection	2,772,000 cy

Notes:

1. All values in feet (ft) or cubic yards (cy). Elevation (Elev.) is shown in feet (NAVD88).
2. Pool elevation 584.1 feet based on survey from April 2023.
3. Base elevation of the SFAP assumed elevation 550 feet from design drawings (Stantec 2016b; AEPSC 2016c).

3.2.4 Visual Inspection (257.83(b)(2)(vi))

The visual inspection of the SFAP and appurtenant structures was conducted to identify actual or potential structural weaknesses or a condition disrupting or that has potential to disrupt the operation and safety of the impoundment. Specific items observed included upstream and downstream slopes, crest of the embankment dam/dike, and inlet and outlet structures. Appendix A includes a plan view and table with inspection points identified in the field. Appendix D includes a photographic log of the conditions.

Observations began with the upstream and downstream embankment slopes. In general, the downstream slopes appear to be in good condition with established, mowed grass and limited woody vegetation. Historic sluice lines are located along the southern and eastern dikes. The recently constructed LVWTS piping is visible entering the southeastern corner of the SFAP embankment dike (Photograph 1). An area of new vegetation was noted (Photograph 8; Points 20 and 21), suggesting the crossing location of the piping to the coal pile runoff pond. The new piping is not visible at this location.

No flow was noted at the inlet to the SFAP at the southeastern corner (Photograph 2). The interior of the pond is relatively flat and dry in the eastern half with woody vegetation and tall grass, limiting observation (Photograph 3). An excavation or test pit was present in the tall grass along the southeastern corner and discussed with the personnel present.

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Soft spots, holes, and erosion were noted on the downstream slope along State Route 7. Most appeared minor and were noted as maintenance items. Standing water was observed in the channel at the toe of slope (Photographs 5 and 6). Continued monitoring of this slope and the existing seepage blankets is recommended.

The northern dike has an established operational road with a boiler slag surface. Monitoring wells were noted during the site visit. Low spots with standing water on the road were noted (Photograph 10; Point 22). In areas with open water, the upstream slope of the northern dike included a riprap surface (Photograph 11).

The downstream side of the western slope was mowed with several seepage blankets (Photograph 13). A channel with standing water was located at the toe of slope. Signs of slope instability or new areas of seepage were not identified during the site walk. Monitoring of this slope should continue. The outfall to Kyger Creek was located at the southern end of the channel (Photograph 14). The concrete outfall for the SFAP was observed at the southwestern corner of the pond (Photograph 15). The upstream slope had a riprap surface above the water line.

3.2.5 Changes that Affect Stability or Operation (257.83(b)(2)(vii))

Recent construction activities affecting the operation and geometry of the SFAP have been noted above. Based on discussions with OVEC representatives and observations made during the field inspection, there were no changes to the SFAP impoundment that should affect its stability or future operational needs. Locations where piping enters and exits the embankment dike should be included in monitoring activities to note any changes.

4.0 SUMMARY OF FINDINGS

The following recommendations regarding maintenance, monitoring, and deficiencies are offered for the Kyger Creek Station's two CCR surface impoundments.

4.1 MAINTENANCE

4.1.1 Boiler Slag Pond

The northwestern corner of the BSP was obscured by small trees, stumps, and heavy brush (Photograph 1 in Appendix D). Stantec recommends that this area be stripped of foliage, grubbed, and seeded with grass to protect it from erosion.

Several areas of minor surface erosion, and bare spots were observed on the exterior slopes of the BSP, specifically in material changes between road surfacing and grass. These areas should be repaired and reseeded as needed. Remove potential CCRs and regrade as needed along the splitter dike and southeastern downstream slope.

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Summary of findings
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Continue to monitor the potential wet spot on the downstream slope near Kyger Creek and address if needed.

The structural integrity of the dikes and components of the BSP should be maintained during continuing closure activities.

4.1.2 South Fly Ash Pond

Backfill the excavation or test pit located in the tall grass along the southeastern corner of the SFAP.

Monitor the seepage blankets and downstream slopes of the eastern and western perimeter embankments for additional wet areas, soft spots, or signs of instability. Also monitor the locations where the new LVWTS piping enters and exits the SFAP embankment for signs of seepage around the piping.

Minor maintenance for the SFAP includes repairing sloughing of the surface (Photograph 12), determining the cause of holes and repairing them (Photograph 15), regrading the drive path for positive drainage (Photograph 17), and repairing bare spots (Photograph 20). Some additional riprap rock may be necessary along the base of the western slope of the SFAP is recommended to protect the soil slope (Photograph 19).

The structural integrity of the dikes and components of the SFAP should be maintained during continuing closure activities.

4.2 MONITORING

EPA regulations require weekly and monthly inspections of the CCR surface impoundments facility, which are performed by qualified plant personnel. These inspections include observations for actual or potential structural weaknesses or other conditions that may disrupt the operation or safety of the CCR unit. The discharge from outlets of hydraulic structures under the base of the surface impoundment or through the dike of the CCR unit is observed for abnormal discoloration or discharge of debris or sediment. Available 2023 weekly and monthly inspection reports were provided by plant personnel for review (OVEC 2023a through 2023e).

Per 40 CFR 257.83(a)(iii), instrumentation should be monitored at least every 30 days by a qualified person. AGES performs a monthly inspection/inventory of the instrumentation at the BSP and SFAP. Daily field activity updates are provided to OVEC and Stantec at a frequency less than 30 days, documenting instrument condition and sampling events (AGES 2023b).

Annual inspections by a qualified professional engineer are required under the EPA regulations. The dam and dike inspections for 2015 through 2022 were performed by American Electric Power Service Corporation (AEPSC) (AEPSC 2015, 2016a, 2017 through 2022). Copies are available on OVEC's publicly accessible CCR website (OVEC 2023f).

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References

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4.2.1 BSP Monitoring

Special or more frequent monitoring of the facility other than that already being performed should not be necessary unless conditions change.

4.2.2 SFAP Monitoring

Special or more frequent monitoring of the facility other than that already being performed should not be necessary unless conditions change.

4.3 DEFICIENCIES

No structural deficiencies in the dam/dike structures were observed during the 2023 annual inspection.

5.0 REFERENCES

American Electric Power Service Corporation. (2022). 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 26. GERS-22-030.

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2023 CCR RULE – SURFACE IMPOUNDMENTS KYGER CREEK DAM/DIKE INSPECTIONS

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**2023 CCR RULE – SURFACE IMPOUNDMENTS
KYGER CREEK DAM/DIKE INSPECTIONS**

References

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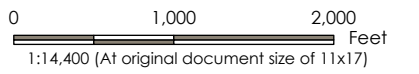
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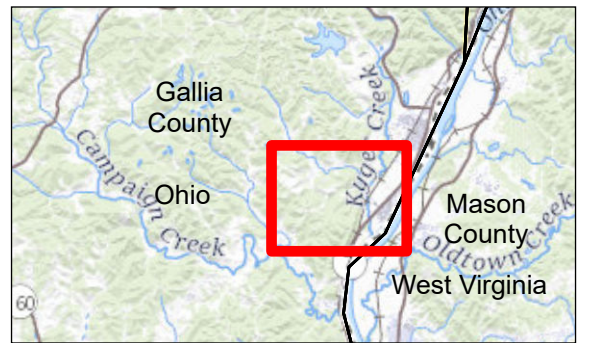
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APPENDIX A

Figures



- Notes**
1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
 2. Base features - OSIP
 3. Ortho-imagery does not represent current conditions.



Project Location: Kyger Creek Station, Gallia County, OH
 Prepared by ANP on 2023-12-06
 Technical Review by MDK on 2023-12-06
 Independent Review by JSH on 2023-12-06

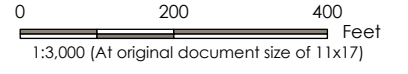
Client/Project: Ohio Valley Electric Corporation
 Kyger Creek Station

Figure No. **1**

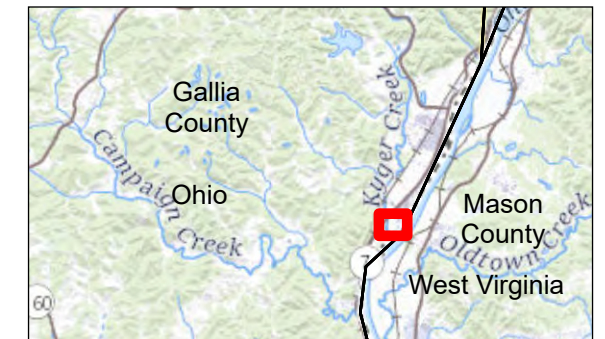
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- Legend
- 1 → Photo Location
 - 2023 Inspection Locations



- Notes**
1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
 2. Base features - OSIP III - 2020.
 3. Ortho-imagery represents conditions as of July 2023.



Project Location: 175532013
Kyger Creek Station Prepared by ANP on 1/12/2024 12:51 PM
Gallia County, OH Technical Review by MDK on 1/12/2024 12:51 PM
Independent Review by JSH on 1/12/2024 12:51 PM

Client/Project
Ohio Valley Electric Corporation
Boiler Slag Pond

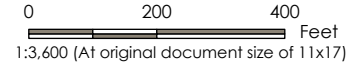
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2

Title
2023 Annual CCR Surface Impoundment Inspection

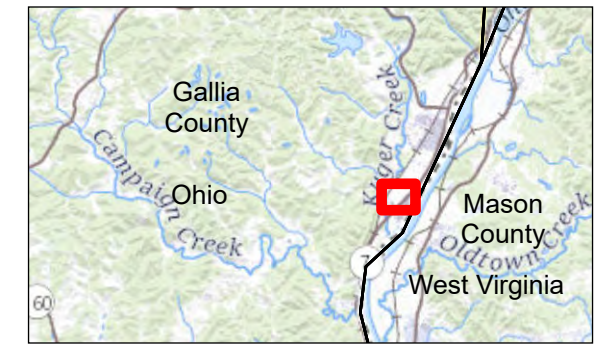
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- Legend
- 1 → Photo Location
 - 2023 Inspection Locations



- Notes**
1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
 2. Base features - OSIP III - 2020.
 3. Ortho-imagery represents conditions as of July 2023.



Project Location: 175532013
Kyger Creek Station Prepared by ANP on 1/12/2024 12:51 PM
Gallia County, OH Technical Review by MDK on 1/12/2024 12:51 PM
Independent Review by JSH on 1/12/2024 12:51 PM

Client/Project:
Ohio Valley Electric Corporation
South Fly Ash Pond

Figure No. **3**
Title
2023 Annual CCR Surface Impoundment Inspection

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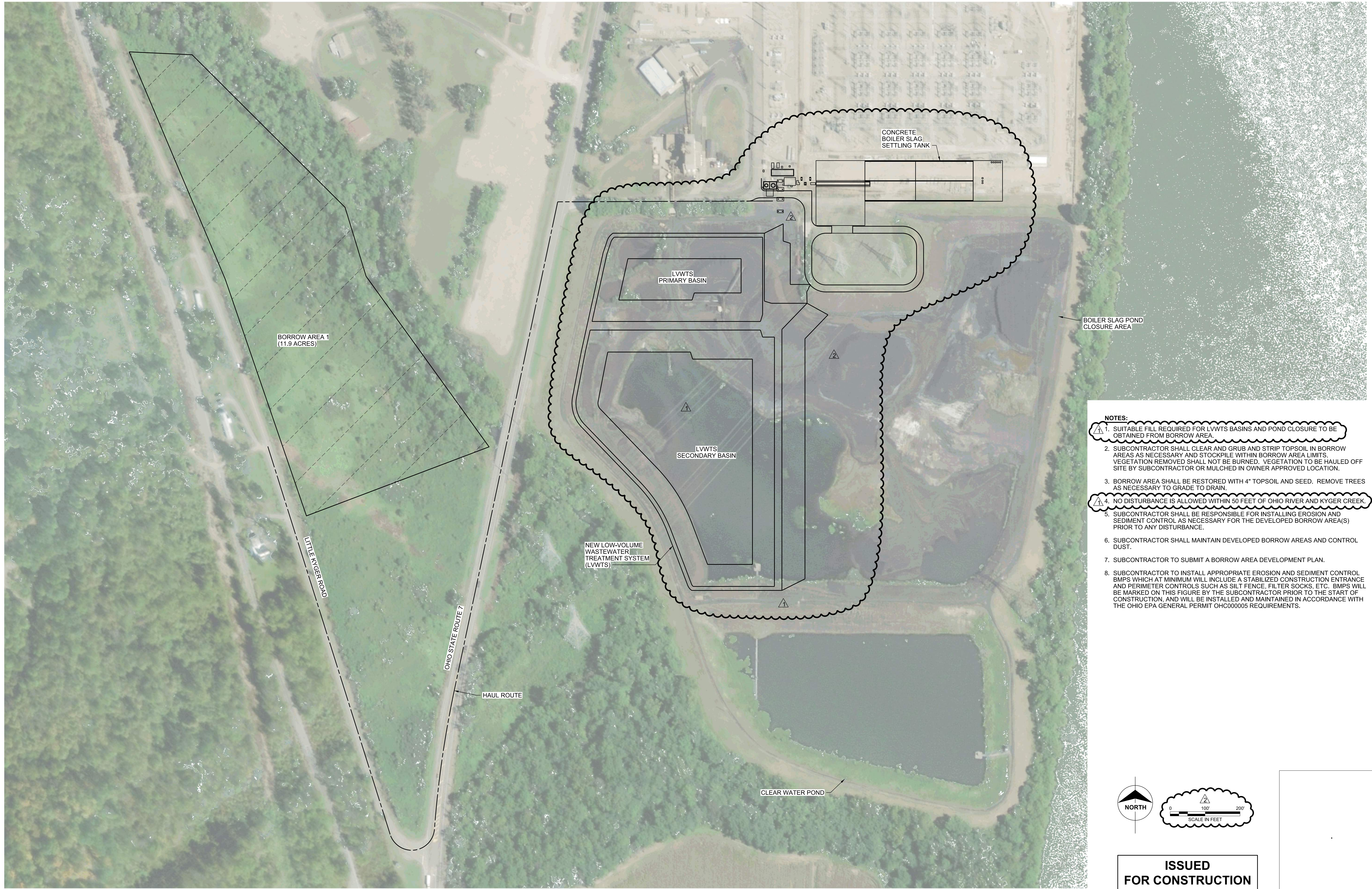
GPS Data Points
2023 Annual Inspection

Kyger Creek CCR Surface Impoundments
Gallia County, Ohio

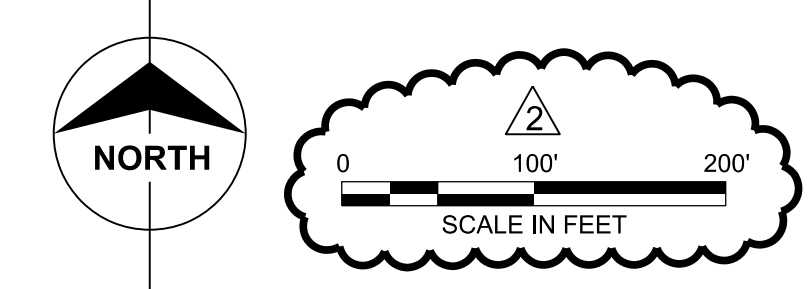
Point ID No.	Comment	Latitude	Longitude	Impoundment
1	erosion rill 1 ft x 4 in	38.912950920	-82.133515710	BSP
2	stumps and woody vegetation	38.912993660	-82.133649730	BSP
3	erosion rill	38.912962990	-82.133707590	BSP
4	erosion at vegetation change	38.912633510	-82.134053220	BSP
5	erosion at vegetation change	38.911778820	-82.135149310	BSP
6	erosion top to midslope, 2 ft x 4 ft	38.911610110	-82.135130250	BSP
7	erosion crest to toe 2 ft x 6 inch	38.910237400	-82.134985100	BSP
8	bare area, sparse vegetation	38.909159380	-82.131347770	BSP
9	bare spot 2 ft x 1 ft, wet	38.909303760	-82.131213140	BSP
10	bare area near road crest, 2/3 slope, start	38.909748080	-82.130534990	BSP
11	bare area near road crest, 2/3 slope, end	38.910225310	-82.130153950	BSP
12	erosion gully 5 ft at crest, 2/3 slope	38.910270800	-82.130133810	BSP
13	cut toe interior dike	38.910543860	-82.129972150	BSP
14	cut toe lower 1/3 inside dike	38.910453910	-82.130062980	BSP
15	erosion rill 5 ft x 1 ft, 2/3 slope	38.910413090	-82.130106440	BSP
16	soft spot, damp at toe	38.917357690	-82.129181430	SFAP
17	hole, 8 in dia., north of seepage blanket	38.918588890	-82.127628920	SFAP
18	minor soft spot north of revegetation	38.918850740	-82.127235980	SFAP
19	erosion, pool at toe, 3 ft x 4 ft	38.918956440	-82.127120540	SFAP
20	edge of new vegetation along SR7	38.919021410	-82.127018610	SFAP
21	edge of new vegetation along SR7	38.919533280	-82.126682370	SFAP
22	standing water divider dike, 4 ft x 20 ft	38.920659570	-82.127381020	SFAP
23	standing water, divider dike	38.921904270	-82.129983630	SFAP
24	bare spot with erosion	38.917566750	-82.134407870	SFAP
25	slump with bulge at toe	38.917554700	-82.134387860	SFAP
26	toe cut for piping placement	38.916938580	-82.133516700	SFAP
27	bare spot, toe of slope, 25 ft x 3 ft	38.917181450	-82.129532780	SFAP
28	erosion rill, crest to pipes, 12 inches wide	38.917583390	-82.129064570	SFAP

APPENDIX B

Reference Drawings



- NOTES:**
1. SUITABLE FILL REQUIRED FOR LVWTS BASINS AND POND CLOSURE TO BE OBTAINED FROM BORROW AREA.
 2. SUBCONTRACTOR SHALL CLEAR AND GRUB AND STRIP TOPSOIL IN BORROW AREAS AS NECESSARY AND STOCKPILE WITHIN BORROW AREA LIMITS. VEGETATION REMOVED SHALL NOT BE BURNED. VEGETATION TO BE HAULED OFF SITE BY SUBCONTRACTOR OR MULCHED IN OWNER APPROVED LOCATION.
 3. BORROW AREA SHALL BE RESTORED WITH 4" TOPSOIL AND SEED. REMOVE TREES AS NECESSARY TO GRADE TO DRAIN.
 4. NO DISTURBANCE IS ALLOWED WITHIN 50 FEET OF OHIO RIVER AND KYGER CREEK.
 5. SUBCONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING EROSION AND SEDIMENT CONTROL AS NECESSARY FOR THE DEVELOPED BORROW AREA(S) PRIOR TO ANY DISTURBANCE.
 6. SUBCONTRACTOR SHALL MAINTAIN DEVELOPED BORROW AREAS AND CONTROL DUST.
 7. SUBCONTRACTOR TO SUBMIT A BORROW AREA DEVELOPMENT PLAN.
 8. SUBCONTRACTOR TO INSTALL APPROPRIATE EROSION AND SEDIMENT CONTROL BMPs WHICH AT MINIMUM WILL INCLUDE A STABILIZED CONSTRUCTION ENTRANCE AND PERIMETER CONTROLS SUCH AS SILT FENCE, FILTER SOCKS, ETC. BMPs WILL BE MARKED ON THIS FIGURE BY THE SUBCONTRACTOR PRIOR TO THE START OF CONSTRUCTION, AND WILL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE OHIO EPA GENERAL PERMIT OHC000005 REQUIREMENTS.



**ISSUED
FOR CONSTRUCTION**

no.	date	by	ckd	description
2	06/27/22	NJF	DGK	ISSUED FOR CONSTRUCTION
1	01/14/22	AMM	DGK	REVISED PER ODNR COMMENTS
0	12/06/21	AMM	DGK	INITIAL ISSUE

no.	date	by	ckd	description

designed	detailed
N. FORD	J. RIDDER

**BURNS
MCDONNELL**

9400 WARD PARKWAY
KANSAS CITY, MO 64114
816-333-9400
Burns & McDonnell Engineering Co., Inc.
Certificate of Authority No. 01557

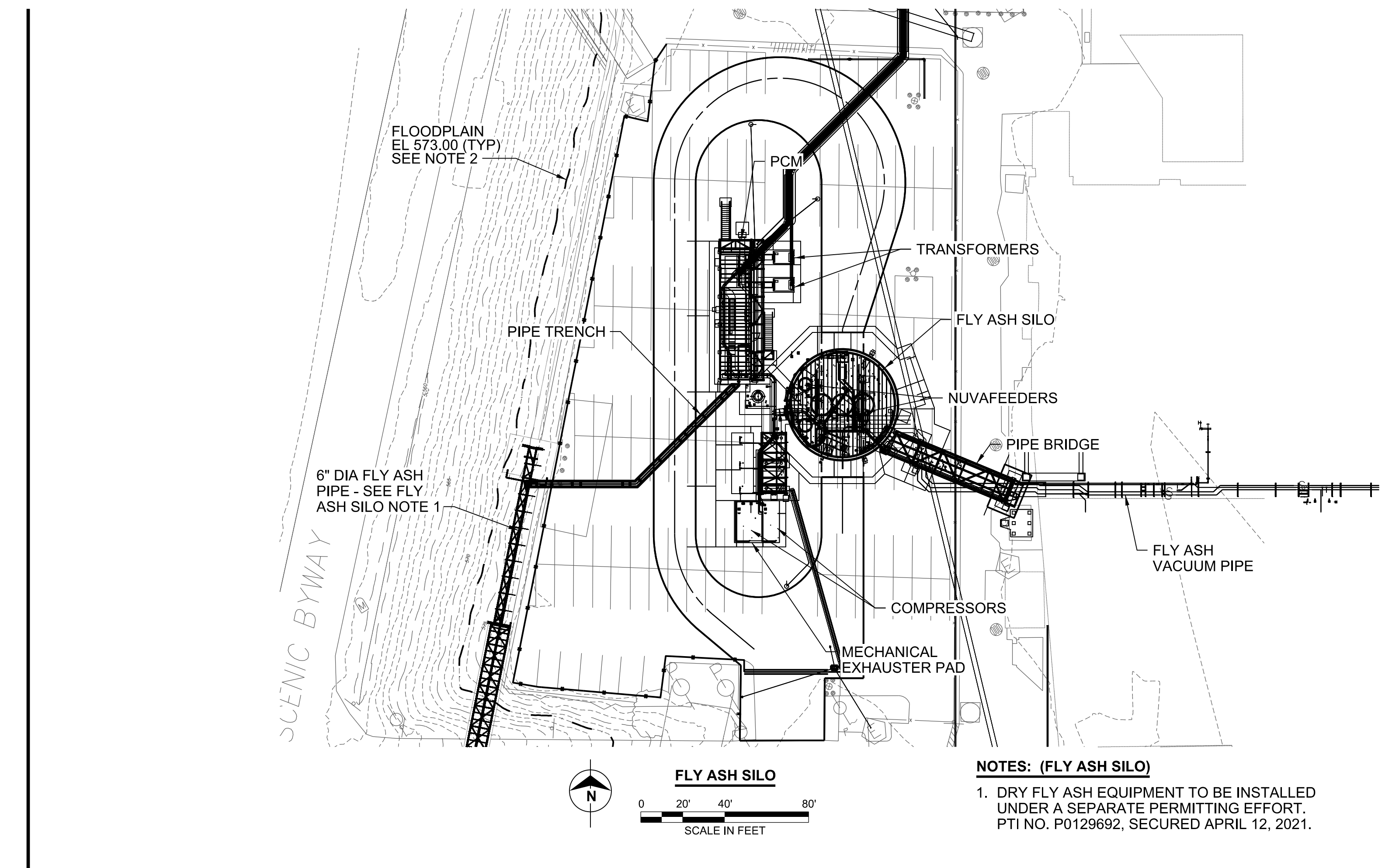
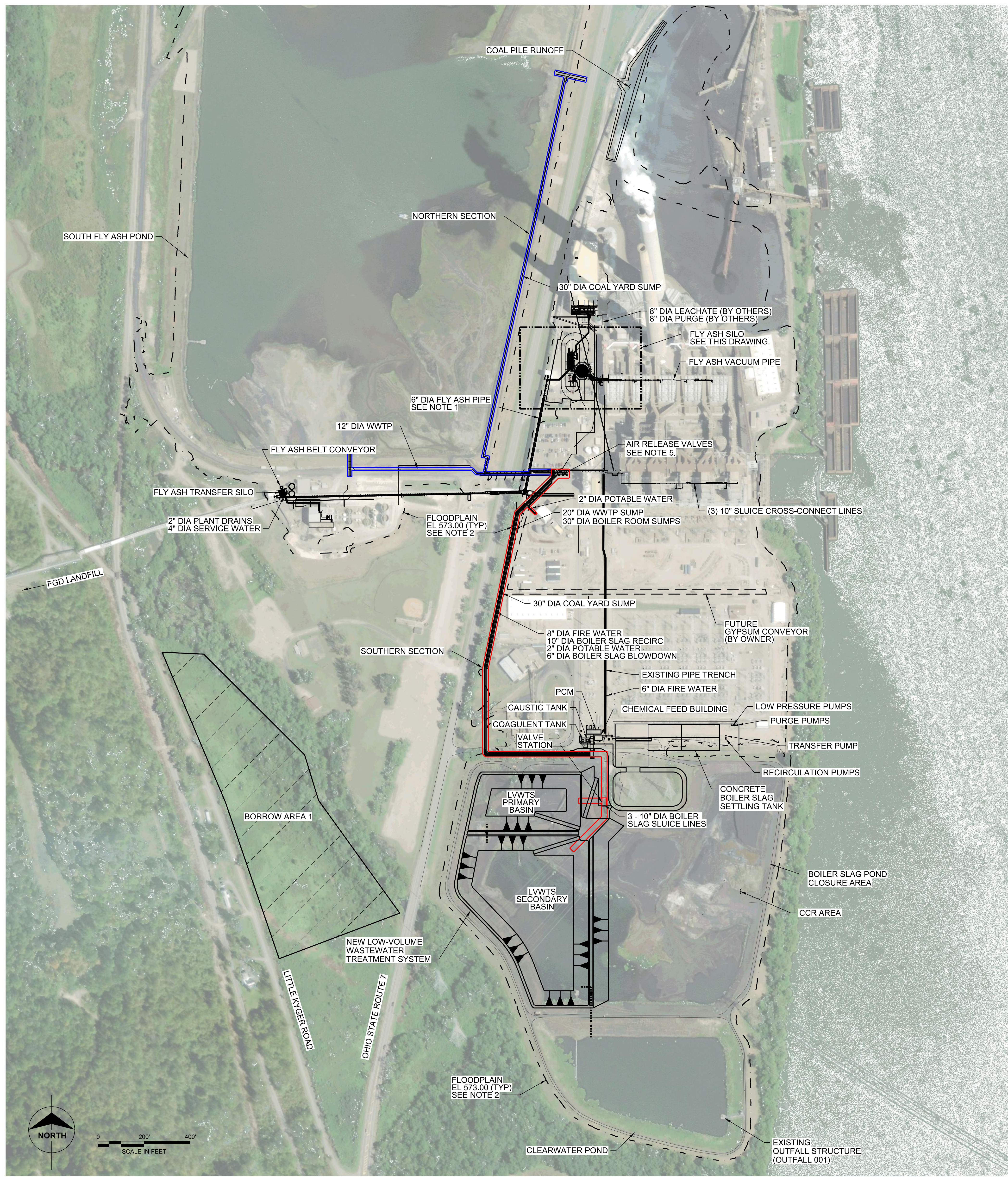
OVEC IKEC
Ohio Valley Electric Corporation / Indiana-Kentucky Electric Corporation

**KYGER CREEK GENERATING STATION
CCRELG PROJECT**

GALLIA COUNTY, OHIO

BORROW PLAN

project	126371	contract	8125
drawing	CG401	rev.	2
sheet	of	sheets	
file 126371CG401.DGN			



- NOTES:**
- FLY ASH CONVEYING PIPE HUNG / SUPPORTED ON EXISTING GYPSUM CONVEYOR.
 - FLOODPLAIN ELEVATION BASED ON 573.00 CONTOUR OF PLANT ELEVATION DATUM. FLOODPLAIN VARIES BETWEEN EL 571.60 AND EL 571.80 IN NAVD88.
 - SITE PLAN INCLUDES SCOPE FROM MULTIPLE CONTRACTS.
 - LOW VOLUME WASTEWATER STREAMS - RELOCATION KEY: (VALUES ARE AVERAGE FLOW)

30" HDPE BOILER ROOM SUMP:	7014 GPM
30" HDPE COAL YARD SUMP LINE:	131 GPM
6" CS PRECIPITATOR SUMP LINE:	13 GPM
3" CS BOILER SLAG RECYCLE TANK PURGE LINE:	159 GPM
20" HDPE WASTEWATER TREATMENT PLANT SUMP LINE:	204 GPM
2" HDPE FLY ASH TRANSFER SILO SUMP:	20 GPM
 - AIR RELEASE VALVES AUTOMATICALLY OPEN DURING SYSTEM STARTUP AND OCCASIONALLY DURING NORMAL OPERATION TO ALLOW ENTRAPPED AIR TO ESCAPE THE PROCESS PIPING. DURING THIS OCCASIONAL RELEASE, A NEGLIGIBLE AMOUNT OF PROCESS WATER MAY ESCAPE THE VALVE AND BE RELEASED TO GRADE.

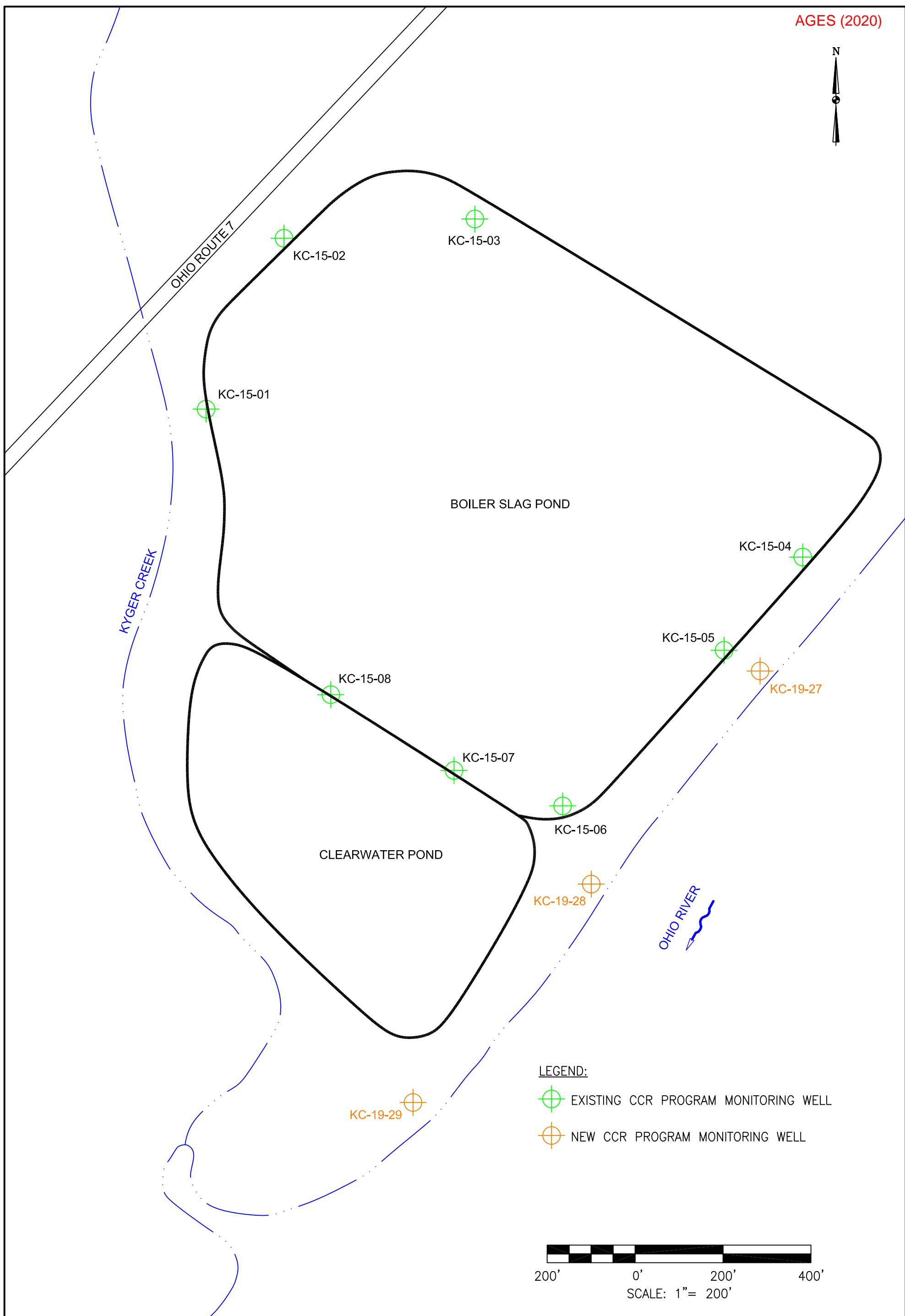
**ISSUED
FOR CONSTRUCTION**



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9	04/29/22	NJF	DGK	ISSUED FOR CONSTRUCTION					
8	03/16/22	SRH	DGK	REVISED LOCATION OF BOILER SLAG SETTLING TANK, CHEMICAL TREATMENT EQUIPMENT, AND LVWTS BASINS - ISSUED FOR PERMITTING					
7	01/05/22	AMM	DGK	ISSUED FOR PERMITTING					
6	12/06/21	AMM	DGK	ISSUED FOR BID					
5	10/11/21	MEB	DGK	ISSUED FOR CONSTRUCTION	10	06/27/22	NJF	DGK	ISSUED FOR CONSTRUCTION

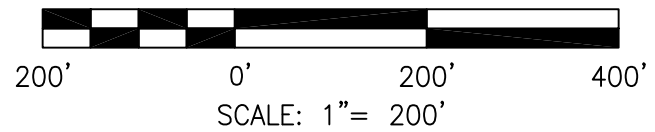
<p>9400 WARD PARKWAY KANSAS CITY, MO 64114 816-333-9400 Burns & McDonnell Engineering Co., Inc. Certificate of Authority No. 01557</p>	<p>OHIO VALLEY ELECTRIC CORPORATION / INDIANA-KENTUCKY ELECTRIC CORPORATION</p> <p>KYGER CREEK GENERATING STATION CCR/ELG PROJECT</p> <p>GALLIA COUNTY, OHIO</p>	SITE PLAN	
		project 126371 drawing CS001 sheet of file 126371CS001.DGN	contract MULTIPLE rev. 10 sheets

APPENDIX C


Instrumentation



LEGEND:
 EXISTING CCR PROGRAM MONITORING WELL
 NEW CCR PROGRAM MONITORING WELL

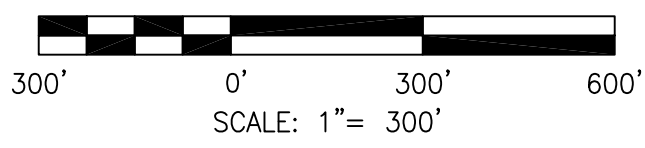
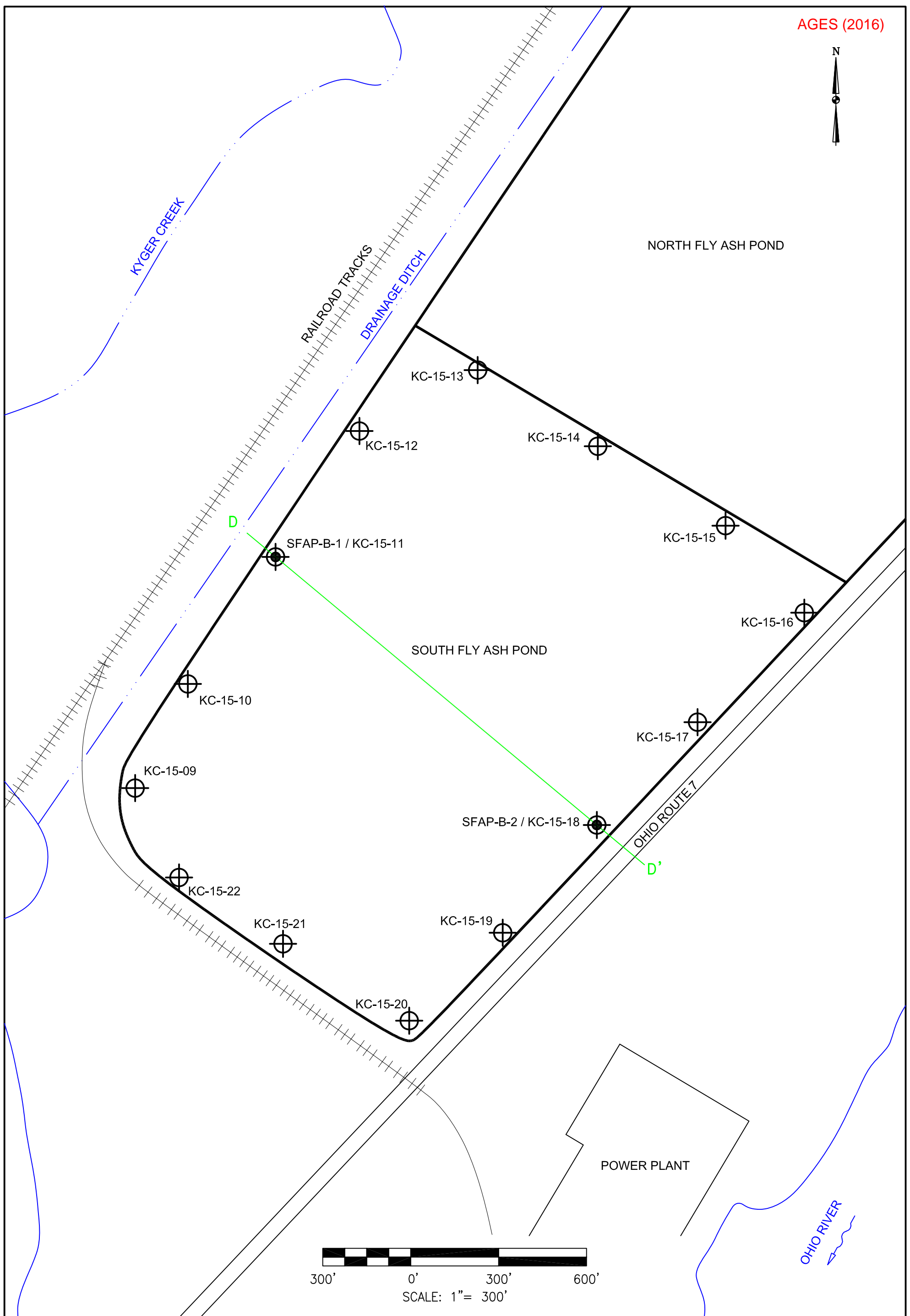


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CHECKED BY	
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DWG FILE	2019 ACM_KYGER_Fig 5-1_BSP_MWs&SBs.dwg
DRAWING SCALE	1"=200'



AGES
 Applied Geology And Environmental Science, Inc.
 2402 Hookstown Grade Road, Suite 200
 Clinton, PA 15026
 412.264.6453

OHIO VALLEY ELECTRIC COMPANY	
KYGER CREEK STATION CHESHIRE, GALLIA COUNTY, OHIO BOILER SLAG POND EXISTING AND NEW MONITORING WELL LOCATIONS	
DRAWING NAME	FIGURE 5-1
REV.	0



LEGEND:

	SOIL BORING / MONITORING WELL LOCATION
	MONITORING WELL LOCATION

DRAWN BY	JM
DATE	
CHECKED BY	
JOB NO.	2015079-KYGER
DWG. FILE	KYGER MW INSTALL_PONDS+MWs b11.dwg
DRAWING SCALE	1"=300'

2402 Hookstown Grade Road, Suite 200
Clinton, PA 15026
412.264.6453

OHIO VALLEY ELECTRIC COMPANY	
KYGER CREEK STATION CHESHIRE, GALLIA COUNTY, OHIO SOUTH FLY ASH POND SOIL BORING AND GROUNDWATER MONITORING WELL LOCATIONS	
DRAWING NAME	FIGURE 7
REV.	0

APPENDIX D

Photographic Log

PHOTOGRAPHIC LOG

Boiler Slag Pond (BSP)



Photograph 1 – Vegetation at northwest corner of BSP.



Photograph 2 – Western embankment of BSP.



Photograph 3 – New vegetation at northern side of LVWTS, primary basin.



Photograph 4 – New vegetation along western and southern side of LVWTS, secondary basin.



Photograph 5 – Erosion noted at change from access road to grassed slope.



Photograph 6 – Bare spot located on slope between BSP and Kyger Creek.



Photograph 7 – Downstream southwestern slope near Kyger Creek.



Photograph 8 – New vegetation on southern LVWTS dike, secondary basin.



Photograph 9 – Splitter dike between BSP and Clearwater Pond.



Photograph 10 – BSP water management and pumping adjacent to LVWTS.



Photograph 11 – Outlet structure from Clearwater Pond to the Ohio River.



Photograph 12 – Boiler slag pond closure area east of LVWTS.



Photograph 13 – Downstream eastern embankment of BSP.



Photograph 14 – Downstream eastern embankment of the BSP.



Photograph 15 – Minor erosion of surface material between BSP and Ohio River.



Photograph 16 – Erosion gulleys located on interior dam surface near northeastern corner of BSP.



Photograph 17 – Eastern embankment with boiler slag closure area on the right.



Photograph 18 – Excavation in northeastern corner of boiler slag closure area.

PHOTOGRAPHIC LOG

South Fly Ash Pond (SFAP)



Photograph 1 – LVWTS piping entering southeast corner of the SFAP embankment.



Photograph 2 – Southeast inlet into SFAP.



Photograph 3 – Southeast corner of the SFAP.



Photograph 4 – Minor surface sloughing of eastern slope of SFAP along State Route 7.



Photograph 5 – Downstream side of eastern perimeter embankment.



Photograph 6 – Seepage blanket on downstream side of eastern perimeter embankment.



Photograph 7 – Erosion at toe of eastern embankment.



Photograph 8 – New vegetation at possible LVWTS piping crossing on downstream side eastern embankment.



Photograph 9 – Small hole on eastern downstream slope of SFAP.



Photograph 10 – Standing water on northern dike.



Photograph 11 – Northern dike showing upstream riprap protection.



Photograph 12 – Western embankment showing upstream riprap protection.



Photograph 13 – Aggregate seepage blankets on western slope.



Photograph 14 – Outfall to Kyger Creek west of SFAP.



Photograph 15 – Outlet structure in southwestern corner of SFAP.



Photograph 16 – Southwestern corner of SFAP.



Photograph 17 – Downstream side of southern embankment. Construction near area toe was excavated.