Gavin Power, LLC

2019 Annual Inspection Report

Bottom Ash Pond and Stingy Run Fly Ash Reservoir

Gavin Power Plant
Cheshire, Ohio

8 January 2020

Project No.: 0505619

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Document details	The details entered below are automatically shown on the cover and the main page footer. PLEASE NOTE: This table must NOT be removed from this document.
Document title	2019 Annual Inspection Report
Document subtitle	Bottom Ash Pond and Stingy Run Fly Ash Reservoir
Project No.	0505619
Date	8 January 2020
Version	1.0
Author	
Client Name	Gavin Power, LLC

Document history

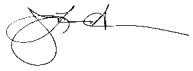
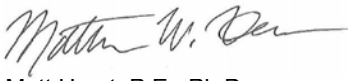
				ERM approval to issue		
Version	Revision	Author	Reviewed by	Name	Date	Comments
Draft	00	M. Hurst	J. Hemme	J. Robb	01.08.20	

Signature Page

8 January 2020

2019 Annual Inspection Report

Bottom Ash Pond and Stingy Run Fly Ash Reservoir
at the Gavin Power Plant in Cheshire, Ohio

 J. Lawrence Hosmer, P.E. *Principal-in-Charge*		 Joseph Robb, P.G. *Project Manager*
 James Hemme, P.E., L.R.S., M.B.A. *Professional Engineer*		 Matt Hurst, P.E., Ph.D. *Consultant II, Engineer*
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Acronyms and Abbreviations

BAC	Bottom Ash Complex
BAP	Bottom Ash Pond
CCR	Coal Combustion Residual
CFR	Code of Federal Regulations
ERM	ERM Consulting & Engineering, Inc.
FAR	Fly Ash Reservoir
MSL	Mean Sea Level

1. INTRODUCTION

The Bottom Ash Pond (BAP) and Stingy Run Fly Ash Reservoir (FAR) at the Gavin Power Plant in Cheshire, Ohio are surface impoundments subject to 40 Code of Federal Regulations (CFR) Part 257, Subpart D, “Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments,” known as the Coal Combustion Residuals (CCR) Rule. The CCR Rule requires an annual inspection and reporting for surface impoundments.

This Annual Inspection Report of these two surface impoundments has been prepared by ERM Consulting & Engineering, Inc. (ERM) to comply with these requirements of the CCR Rule, 40 CFR § 257.83(b).

1.1 Summary of Conditions of Annual Inspection

Mr. James Hemme, the certifying P.E., and Dr. Matt Hurst, P.E., Ph.D. performed the annual inspection. Mr. Douglas E. Workman, Gavin Environmental Support, and Mr. Colin McKean, the Landfill Process Owner at Gavin Power, were the facility contacts and supported the inspection activities. Other members of the Gavin Power team also assisted with logistics and provided data for the completion of the inspection and report.

The inspections of the BAP and the FAR were performed on 29 October 2019. Weather on 29 October consisted of partly overcast to clear skies, light wind, and temperatures ranging from 45 degrees Fahrenheit (°F) to 60°F. In the seven days prior to inspection, 1.6 inches of precipitation was recorded at the rain gauge at Gavin Power Plant site.

1.2 Regulatory Cross-Reference Table

Per 40 CFR § 257.83(b)(1), annual inspections must be completed on CCR surface impoundments by a qualified Professional Engineer. As noted above, the two inspectors of the BAC and FAR are Professional Engineers. The certifying engineer maintains a Professional Engineering license in Ohio. Table 1, below, is a regulatory cross-reference table that describes the additional inspection requirements and where this report addresses these requirements.

Table 1: Federal Regulatory Requirement Cross-Reference Table

Federal Regulatory Requirement Summary	Location in the Annual Report
§ 257.83(b)—Annual inspections by a qualified professional engineer	Sections 1.1 and 1.2
§ 257.83(b)(1)(i)—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, previous periodic structural stability assessments, the results of inspections by a qualified person, and results of previous annual inspections)	Section 6
§ 257.83(b)(1)(ii))—A visual inspection of the CCR unit to identify signs of distress or malfunction of the CCR unit and appurtenant structures	Sections 3 and 4; Appendix A
§ 257.83(b)(1)(iii)—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	Sections 3 and 4; Appendix A
§ 257.83(b)(2)(i))—Any changes in geometry of the impounding structure since the previous annual inspection	Sections 2.2 and 2.3.1
§ 257.83(b)(2)(ii)—The location and type of existing instrumentation and the maximum recorded readings of each instrument since the previous annual inspection	Section 5; Appendix C
§ 257.83(b)(2)(iii)—The approximate minimum, maximum, and present depth and elevation of the impounded water and CCR since the previous annual inspection	Tables 2 and 3
§ 257.83(b)(2)(iv)—The storage capacity of the impounding structure at time of inspection	Tables 2 and 3
§ 257.83(b)(2)(v)—The approximate volume of the impounded water and CCR at time of the inspection	Tables 2 and 3
§ 257.83(b)(2)(vi)—Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR and appurtenant structures	Sections 3 and 4; Appendix A
§ 257.83(b)(2)(vii)—Any other change(s) which may have affected the stability or operation of the impounding structure since the previous annual inspection	Sections 3 and 4; Appendix A

2. GAVIN PLANT INFORMATION

2.1 Facility Overview

The Gavin Power Plant is a coal-fired power station located in Gallia County, Ohio, just south of Cheshire, Ohio, and adjacent to State Route 7, as shown on Figure 1. The Plant is also adjacent to the western shoreline of the Ohio River. Nearby towns include Addison, Ohio and Point Pleasant, West Virginia.

2.2 Bottom Ash Pond

The BAP is adjacent to Ohio State Route 7, which is immediately south of the Plant and west of the Ohio River. The Reclaim Pond abuts and is located to the northwest of the Bottom Ash Pond. The Reclaim Pond was not designed to hold an accumulation of CCR and does not treat, store or dispose of CCR, and thus is not considered a CCR Surface Impoundment under the CCR Rule. The two ponds comprise the Bottom Ash Complex (BAC). The location of the Bottom Ash Pond is shown on Figure 1, and the general layout of the BAC is shown on Figure 2.

The Bottom Ash Pond and the Reclaim Pond consist of continuous earthen embankments that surround the complex on all four sides. Bottom ash slurry is pumped into the Bottom Ash Pond. The water from Bottom Ash Pond is decanted through a reinforced concrete drop inlet structure into the Reclaim Pond. Within the Reclaim Pond, stored water is pumped to the Plant for reuse or discharged to the Ohio River via an overflow structure, in conformance with the facility's National Pollutant Discharge Elimination System permit. Table 2 provides current operational information and updated geometry of the BAC as required by 40 CFR § 257.83(b)(2)(iii), (iv), and (v). ERM did not observe any significant changes in geometry of the BAC based on its 2019 site visit and review of previous inspection reports.

Table 2: 2019 Operation Information for the Bottom Ash Pond

Parameter	Value
Total Surface Area[1]	49.1 acres
Height of Dikes	22 to 36 feet
Range of Solids Elevation[2]	550 to 564 feet above Mean Sea Level (MSL)
Average Solids Elevation	557 feet above MSL
Storage Capacity[3]	1346 acre-feet
Lowest Crest Elevation	586 feet above MSL
Elevation of Water Bottom Ash Pond and Water Depth[4]	Most recent (12/04/19): 577.1 feet above MSL (20.1 feet deep); Minimum: 575.0 feet above MSL (18.0 feet deep); Maximum: 578.9 feet above MSL (21.9 feet deep)
Approximate Volume of Impounded Water[5]	422 acre-feet
Approximate Volume of CCR[6]	448 acre-feet

2.3 Stingy Run Fly Ash Reservoir

The FAR is located about 2.5 miles northwest of the Plant. The location of the FAR is indicated on Figure 1. The outfall from the FAR drains to Stingy Run, which is a tributary to Kyger Creek. Kyger Creek flows into the Ohio River approximately 3 miles downstream and south of the Plant. The layout of the FAR is shown on Figure 3. As discussed in Section 2.3.2, the Stingy Run Fly Ash Pond has been undergoing closure, which is anticipated to be completed by the end of 2020.

2.3.1 Stingy Run Fly Ash Dam

The Stingy Run Fly Ash Dam is an earthen embankment that was constructed to retain settled fly ash at the Stingy Fly Run Ash Pond. In previous reports, this area was also referred to as the Main Dam. Significant grading changes have occurred since 2018, and the crest has been leveled and widened as part of the ongoing closure process. The new lower crest elevation is currently approximated at 691 feet. The elevations of the north and south groins remain at 735 feet. Photographs of the Fly Ash Dam at the time of ERM's inspection are provided in Appendix A.

On the downstream (east facing) slope below the crest significant grading changes have occurred at the benches near the middle and at the toe of the slope. The intermediate bench and toe grade have been lowered in the central portion of the dam alignment. A concrete spillway is currently in construction as part of the FAR Closure Plan. Refer to Appendix A for photographs of the construction progress on the eastern face

[1] Based on a 2019 study, total surface area was calculated at 49.1 acres using available contour data in AutoCAD Civil 3D 208. .

[2] The value reported above is provided in Geosyntec's 2016 Groundwater Monitoring Network Evaluation – Bottom Ash Complex Report, Geosyntec and available contour data from a 2019 study. For the purposes of these calculations, a solids elevation of 557 feet was assumed, although this is variable depending on location in BAP and conducted using surfaces in AutoCAD.

[3] The total storage capacity was estimated based on a maximum storage elevation of 586 feet and available average surface area of about 49.1 acres in the Bottom Ash Pond.

[4] Based on the 2019 study, the solids elevation of the pond bottom was approximately elevation 550 feet for the western portion of the pond and 562 to 564 feet for the eastern portion of pond. An average elevation of solids is about 557 feet.

[5] The approximate volume of impounded water for the Bottom Ash Pond was estimated based on the depth of water at the time of inspection and an estimated volume based on solid surface contours in AutoCAD.

[6] The approximate volume of CCR was calculated based on variable bottom depth and surfaces in AutoCAD.

of the dam looking up from the toe. An access road from the toe follows the northern groin of the embankment, and a construction haul road follows the southern groin providing access for routine operations and construction traffic (Figure 3). As the FAR pond closure construction progresses, the crest of the dam will be lowered to a level that is slightly below the elevation of the intermediate bench, at approximately 661 feet.

Reservoir levels were previously regulated by a 100-foot-high concrete intake tower within the principal spillway. Currently, reservoir levels are maintained in a minimized state and are regulated by an adjacent siphon pump that maintains the pool level at a relatively constant elevation. During the inspection, the average surface water elevation in the Fly Ash Pond was 665.7 feet. In the event of a large storm, sufficient pool capacity is present to store the precipitation event and the existing concrete intake tower is still operable. Specific geometric information regarding the Fly Ash Pond is shown on Table 3 in accordance with 40 CFR § 257.83(b)(2)(iii), (iv), and (v). ERM did not observe any significant changes in the geometry of the FAR based on its 2019 site visit and review of previous inspection reports.

Table 3: 2019 Operational Information for the Stingy Run Fly Ash Reservoir

Parameter	Value
Approximate Surface Area at Pool Level	6.5 acres
Minimum Embankment Crest Elevation	691 feet above MSL
Ash thickness on bottom of Pool	5 to 60 feet thickness
Storage Capacity[7]	6,500 acre-feet
Water Elevation and Depth	Most recent (12/19/19): 673.1 feet above MSL (10.9 feet deep); Minimum: 663.3 feet above MSL (1.1 feet deep); Maximum: 673.3 feet above MSL (11.1 feet deep)
Approximate Volume of Impounded Water at time of inspection[8]	13 acre-feet
Approximate Volume of CCR[9]	3,900 acre-feet

2.3.2 Stingy Run Fly Ash Pond

The Stingy Run Fly Ash Pond was originally constructed for settling fly ash. In 1994, the Plant ceased fly ash slurry discharges into the reservoir and since that time, only direct precipitation and storm water from upstream areas have entered the pond. The FAR Closure Plan for the Stingy Run Fly Ash Pond was approved by the Ohio Environmental Protection Agency in 2016.

Closure of the Stingy Run Fly Ash Pond is currently in progress, and is anticipated to be completed by the end of 2020. Fly ash located in a southern finger of the pond near the dam was covered with an engineered fill for expansion of the existing Residual Waste Landfill. The remaining fly ash is being capped incrementally as fly ash is dewatered and stabilized upstream of the dam. Clay soil and bottom

[7] The storage capacity for the top of dam was based on a total area of 497 acres and a top of dam elevation of 691 feet. In the future, the dam may be lowered further.

[8] The approximate volume of impounded water was estimated based on the approximate surface area of the pond covered by water at time of the annual inspection and an estimated average depth of 2 feet.

[9] The total capacity of the CCR was reported in the 2016 Annual Inspection Report (AEP, 2017) was 3,900 acre-feet. There have been no substantial changes to total CCR during Closure as capping has proceeded.

ash from the former reservoir embankment is being used in the capping process upstream. The general progression of the capping process will be from west (upstream) to east (downstream). A series of engineered channels will be installed across the capped fly ash areas for management of storm water. The channels will tie into Stingy Run on the downstream end.

3. BOTTOM ASH POND VISUAL INSPECTION

The 2019 annual visual inspection conducted for the BAP is summarized below. Photographs referenced herein are located in Appendix A. The approximate locations where the photographs were taken are shown on Figure 4. Qualitative terms used herein to describe the inspection are summarized in Appendix B. The annual inspection report discusses each embankment section of the BAP (i.e. west, south, east, and north embankments) separately. Although it is not regulated under the CCR Rule, this report also describes inspection of the Reclaim Pond since its structural integrity is relevant to the BAP. There were no appearances of actual or potential structural weakness of the BAC during the 2019 visit. In addition, there were no existing conditions that were visually observed to be disrupting or had the potential to disrupt the operation and safety of the BAP and appurtenant structures (e.g., significant and developing erosion gullies, active soil that could impact slope stability, apparent seeps along exterior embankment, etc.) .

3.1 Western Embankment Section

The western embankment section (including crest, slopes, and toes) appeared to be in satisfactory condition (i.e., well vegetated and in a stable condition). There was no visible settlement, rutting, significant erosion, or misalignment identified. The following is a summary of the inspection:

1. The exterior slope had no visual indication of settlement, rutting, or misalignment except for an earthen bulge noted halfway down the slope (Photograph 1), recent grading for a slip and associated earthen bulge noted along the south end of the slope (Photograph 2), and minor vegetated erosion rills and gullies along the exterior of the slope in localized areas (Photograph 3). The existing earthen bulge halfway down the slope (Photograph 1) (noted previously in the 2017 and 2018 Annual Inspection Report) does not appear to be active or expanding. The bulge in this area has reportedly existed since original construction. The new earthen bulge and crest grading work (Photograph 2) does not appear to be active or expanding. Minor vegetated erosion gullies do not appear to have been expanding since previous inspections which noted these (2016 through 2018 Annual Inspection Reports).
2. The drainage ditch along the exterior toe of the western embankment had positive drainage (Photograph 3) and was clear of vegetation. The pipe culvert at the end of the ditch to the south had some vegetation present, but no significant obstructions were identified.
3. A remnant culvert pipe partially crushed and currently plugged with soil was observed (Photograph 4). It is recommended the remnant culvert be partially removed and backfilled on the interior side of the embankment. Refer to Section 7.2.1 for specific recommendations.
4. The interior slope had no visible indication of settlement, rutting, or misalignment. The rip rap along the toe of the interior embankment appeared to be in satisfactory condition (Photograph 5) (e.g., not displaced, in-filled, or incorrectly sized). The interior of the slope was generally well vegetated, but there were localized areas of sparse vegetation (Photograph 5). Developing erosion such as creation of a gully was not apparent at time of inspection.

3.2 Southern Embankment Section

The southern embankment section was generally in satisfactory condition (i.e., appeared to be mostly vegetated and in stable condition). The following is a summary of this visual inspection:

1. The interior and exterior slope had no visual indications of misalignment or settlement (Photographs 7 through 12).

2. To the east along the interior slope, sparse vegetation was identified that may be the result of the placement of bottom ash along the road surface (Photographs 9 and 15). The inert nature of bottom ash and the associated lack of nutrients were likely the cause of the sparse vegetation in that area. A few isolated areas to the west with sparse vegetation on the interior and exterior portion of embankment were also identified (Photographs 7, 8, and 11).
3. A vegetated swale adjacent to the toe of the exterior slope exhibited positive drainage and was vegetated. There was no sign of seepage from the embankment (Photographs 13 and 14). A pipe culvert near the center of the embankment draining to the south appeared to be functioning adequately and draining water from the swale.
4. Routine bottom ash removal operations were evident in the southeast interior corner of the BAP (Photographs 15, and 16). Portions of the interior slope were buttressed by stockpiles of bottom ash. The exposed surface was contained within the embankment, and surface slopes appeared stable at time of inspection.

3.3 Eastern Embankment Section

The eastern embankment section was in satisfactory condition (i.e., appeared to be in stable condition) with some spots of sparse vegetation and minor rills/gullies. No visible indications of rutting, misalignment, or recent settlement were noted. The following is a summary of this visual inspection:

1. The interior slope appeared to be stable and portions of the interior slope were buttressed by stockpiles of bottom ash (Photographs 16 through 18 and 28). The stockpiles of bottom ash also appeared to be stable.
2. The exterior slope appeared stable and the majority of the slope had established vegetative growth. The toe of the slope and swale along the fenceline appeared to be well vegetated (Photographs 19 through 21 and 23). Along the exterior crest, localized areas of sparse vegetation were identified from the crest and approximately 5 feet vertically down the slope (Photographs 24). Along these localized bare spots, a few isolated rills and gullies were identified (Photograph 26). The 2018 inspection revealed that there was some evidence of past sloughing along the exterior slope. During this year's inspection, these areas were vegetated and appeared stable, with no recent signs of movement (Photograph 22).
3. The pipe and support structures for the two nests of slurry lines entering the pond had minor rusting in localized areas but appeared to be structurally sound and in satisfactory condition (Photographs 28). Several pipes were discharging from the plant into the BAP during the site walkthrough and no signs of leaking from the pipes was observed along this eastern face of the embankment. The pipe structures along the bench appeared to be structurally stable with minor, surface rusting in localized areas (Photographs 19 through 21, 25, and 26).

3.4 Northern Embankment Section

The northern embankment section was in satisfactory condition (i.e., appeared to be in stable condition) with some spots of sparse vegetation and minor rills/gullies. No visible indications of rutting or settling were noted. The terrain was slightly uneven along the exterior crest with some bare spots. Additionally, near the toe of the exterior slope, there were isolated wet spots from a recent rain event. The following is a summary of the visual inspection:

1. The discharge pipes and support structure along the interior embankment slope appeared to be functional and in satisfactory operating conditions (Photographs 29 and 30).

2. The coal conveyor system installed along the crest was not running during the inspection. It did appear to be in satisfactorily condition as no evidence of spilled coal, recent replacement parts or similar were observed. (Photographs 32 and 33).
3. Near to, but outside and north of the toe of the dam, ERM identified minor periodic settlement holes along the alignment of the BAC effluent line to outfall (Photograph 34). The settlement holes are spaced at the approximate distance of pipe joints; therefore, it is recommended that a joint of the discharge pipe be exposed at a location of a settlement to more fully determine the cause, and support the development of further recommendations. It is recommended that an ERM representative be on-site to photo-document soil and pipe conditions, as outlined in Section 7.2.1.
4. The interior crest, slope, and toe was vegetated or rip rapped, and stable. No settling, rutting, or misalignment of the slopes was identified (Photographs 29 through 31). Along the interior embankment crest, localized bare spots were identified (Photograph 31), including one noted below the outfall of a discharge pipe on the interior slope (Photograph 35). It is recommended that this be monitored to assess if further erosion develops near the discharge pipe.
5. Along the exterior crest and top of the slope, localized bare spots were identified (Photographs 36 and 37). Further, along the exterior slope, rills and minor gullies had formed in localized spots along the slope and crest (Photographs 37 and 38). These minor gullies and rills appear to have been the result of recent erosion that may be partially a result of runoff from the roof of the conveyor. A bare spot was identified at the toe of the slope in the general vicinity of these rills and gullies (Photograph 38).
6. A drainage ditch and grass swale adjacent to the toe of the exterior slope had positive slope and were effectively draining water into downstream inlet structures (Photograph 438). There was localized shallow standing water near to the toe of the slope, most likely from recent rainfall that had not completely drained yet (Photograph 39). No evidence of seeps along the toe of the embankment were observed.

3.5 Reclaim Pond

The Reclaim Pond embankment was generally in satisfactory condition. No visible indications of settlement were apparent along the embankment. The overflow structure, mixing points, and other flow structures appeared to be functional and satisfactory. There were some minor indications of rills/gullies and sparse vegetation on the interior slope of the pond. The following is a summary of this visual inspection:

1. The crest, slope, and toe along the interior were vegetated (with minor isolated bare spots) or contained rip rap. The rip rap areas appeared to be in stable condition (Photographs 41 through 44).
2. A limited area of the interior slope in the northwest corner of the Reclaim Pond embankment appeared hummocky (Photograph 41). This area was noted during previous inspections. This area was vegetated, and no tension cracks or other signs of recent soil movement were identified.

4. STINGY RUN FLY ASH RESERVOIR INSPECTION

This annual inspection was conducted for the FAR consisting of the Stingy Run Fly Ash Dam and the upstream Stingy Run Fly Ash Pond in accordance with 40 CFR § 257.83(b). Observations from the visual inspection are summarized below. Qualitative terms used herein to describe the inspection are summarized in Appendix B.

Photographs referenced herein are located in Appendix A. The approximate locations where the photographs were taken are shown on Figure 5. Significant grading changes had occurred since the 2018 visit, including significant lowering of the dam crest and construction of a spillway. These items are documented below. There were no visual indications of actual or potential structural weakness of the FAR during the 2019 visit. In addition, there were no existing conditions identified that were disrupting or had the potential to disrupt the closure operations and safety of the FAR and appurtenant structures.

4.1 Toe of Dam and Construction of Spillway

Significant grading changes occurred at the toe and previously existing intermediate bench of the dam. During the annual inspection, a reinforced concrete spillway was in the process of being constructed on the downstream face of the dam and large-scale earthmoving activities and grading were taking place as part of the FAR Closure Plan implementation. No visual indication of settlement, misalignment, or rutting was apparent along the embankment from the toe up to the top of the constructed spillway. The following is a summary of this visual inspection:

1. The slope from the toe up to the intermediate bench appeared to be in satisfactory condition. Within ongoing construction activities, earthmoving activities appeared to be controlled and industry-standard earthwork construction methods were being practiced (Photographs 46, 49, and 51).
2. The toe ditch had a positive drainage to Stingy Creek. The ditch formerly had three V-notched weirs (VW-1, VW-2, and VW-3) used to measure seepage flow, and were observed to be functioning during the 2018 inspection. Weirs WV-1 and WV-2 along the drainage channel at the toe into Stingy Creek were removed by the time of the October 2019 inspection. The third V-notch weir appeared to be in working order (Photograph 47). Several rock check dams approximately evenly spaced had been placed in the toe channel to attenuate flow during large storms (Photograph 53).
3. The overflow weir and mixing point for water pumped from the upstream Fly Ash Pond had an unobstructed flow condition and the supporting structure appeared to be in satisfactory condition (Photograph 48). Within the small settling basin upstream of overflow weir, rock filter curtains, and geotextile curtains had been placed. At the entrance of the overflow weir a turbidity curtain had been installed to minimize siltation build-up. Downstream of the discharge, a geotextile curtain/rock filter had been placed in the discharge channel prior to effluent leaving the site.
4. There was no saturated soil, misalignment or apparent settlement observed at the base of the embankment. Since this was an ongoing construction site and the dam was being lowered and a spillway being constructed concurrently, the conditions are anticipated to change frequently. Observations presented herein therefore represent a snapshot in time. Following construction and closure, the condition of the remaining portion of the embankment can be reassessed during the next annual inspection.
5. There were significant grading and earthmoving activities occurring at the former intermediate bench and slope areas (Photograph 52). The construction appeared to be controlled with industry-standard practices being employed. Construction haul roads appeared to be routinely graded to prevent excessive rutting and to promote the positive drainage of stormwater. Based on what could be

visually observed during the inspection, there was no visible indication of adverse rutting, settlement, or misalignment noted along the former intermediate bench or upslope.

6. There were no signs of excessive erosion occurring on the maintained access roads, which were graded to assure positive drainage away from the road centerline (Photograph 46)

4.2 Crest of Dam

At the time of inspection, the crest of the dam and interior and exterior embankment slopes were being lowered in accordance with the FAR Closure Plan. There were significant earthmoving activities and grading taking place. Most notably, the central portion of the crest had been significantly lowered, while the groins appeared to be maintained at or near the previous crest elevation. The crest of the dam and the land immediately downslope to the east (downstream) appeared to be in satisfactory condition. No visible indication of adverse rutting, settling, or misalignment was noted along the crest or immediately downslope of the crest. The following is a summary of this visual inspection.

1. There was indication of previous soil movement at multiple locations along the embankment during the 2018 inspection. These areas of erosion and movement were known to the Ohio Department of Natural Resources as documented in its May 2017 inspection. As of this 2019 inspection, the interior slips/soil movement areas previously noted have been removed and regraded, thus eliminating this concern (Photographs 54 and 56). No visual indication of adverse rutting, settling, or misalignment was noted along these regraded slopes. These slopes will, continue to be excavated and reshaped by ongoing construction activities into 2020.
2. The central portion of the crest of the dam has been lowered significantly during on-going construction activities (Photographs 55 through 57). The elevation of the center of the crest was reported by the Gavin Power Plant personnel at 691 feet AMSL, which is consistent with the FAR Closure Plan targeted elevation. As the FAR has not achieved complete closure as of the date of the 2019 annual inspection, there is still the need for the FAR to remain functional on a temporary basis for stormwater management purposes. Given that the pool elevation is maintained approximately 27 vertical feet below the reduced crest, the significant volume of storage available, and the temporary status of the embankment, no action is deemed necessary except for continued monitoring during construction. The approved FAR Closure Plan for the Fly Ash Pond referenced in Section 2.3.2 of this report indicates that this soil will be removed prior to final closure in 2020.
3. There was no excess erosion identified along access roads and disturbed areas associated with the recent lowering of the embankment crest.

4.3 Fly Ash Pond

Grading changes and earth disturbance had occurred on the west (interior) slope of the dam embankment. As a result of the dam crest being lowered, the majority of the slope has been removed creating a wide flat area. The interior bottom ash core of the original FAR embankment has been exposed through the lowering of the crest. This bottom ash is being reused in construction of the FAR closure cap upgradient of the remaining pool. Most of the west slope was not vegetated and the former riprap slope protection had been removed. During final stabilization, this west slope will be graded for positive drainage as part of the closure and stabilized with vegetation. The water level in the Fly Ash Pond is no longer controlled by the spillway discharge structure and is now maintained and controlled to a limited depth and footprint by a float-controlled siphon dewatering pump. A second siphon pump has been added for use in dewatering the FAR during embankment demolition.

Filling and capping activities in the upper reaches of the Fly Ash Pond were also taking place as part of the FAR Closure Plan. The following is a summary of this visual inspection:

1. The slope towards the shoreline of the FAR appeared to be stable and in stable condition. Riprap noted during previous annual inspections was visible along the surface and towards the toe of the slope. Due to ongoing grading activities, final stabilization has not yet been achieved. Isolated areas of uneven terrain exist but overall there was no evidence of instability, settling, or adverse rutting.
2. Grading and hauling activities observed near the southern groin area appeared to be well managed, and industry-standard construction practices were evident at the time of inspection (Photograph 61).
3. The expansion of the FAR capping across and upstream of the Fly Ash Pond also appeared to be well managed, and effective staging and construction practices were evident at the time of inspection (Photograph 62).
4. There was no indications of excess erosion or standing water observed along access roads, and the access roads had positive drainage toward the remaining impounded water for purposes of sedimentation (Photograph 60).

5. ASSESSMENT OF RECENT INSTRUMENTATION DATA

5.1 Bottom Ash Complex

Two piezometers, labeled BAP-1, and BAP-2, are located at the BAC as shown on Figure 2. Water level readings were obtained from piezometers BAP-1 and BAP-2 and the Bottom Ash Pond and Reclaim Pond. BAP-1 is near the drainage ditch along the western dike and BAP-2 is located near the toe of the exterior slope of the southern dike. A plot of the maximum monthly recorded readings from these piezometers and pond surfaces is shown in Appendix C in accordance with 40 CFR § 257.83(b)(2)(ii). From January 2019 through December 2019, water levels in BAP-1 and BAP-2 have average elevations of 539.9 and 538.7 feet above MSL, with standard deviations of 0.3 and 2.3 feet, respectively.

The pool water levels in the Bottom Ash Pond had average elevations of 577.0 feet above MSL, with a standard deviation of 0.80 feet. These results indicate that the recorded water levels in the ponds and piezometers have been relatively constant throughout the year. The 2019 results are consistent with the 2018 average surface water elevation of 577 feet above MSL in the Bottom Ash Pond.

5.2 Stingy Run Fly Ash Reservoir

The original monitoring plan of Stingy Run Fly Ash Reservoir included four monitoring wells, three seepage weirs, 15 deformation monuments, and two slope inclinometers, as shown on Figure 6. In 2019 deconstruction and partial removal of the FAR embankment began and these monitoring instruments were removed or were no longer functional at the time of the 2019 inspection. Therefore, the approved FAR Closure Plan no longer relies upon or requires monitoring of those instruments.

5.2.1 Observation Wells and Pond Surface

The monitoring program previously included four observation wells within the FAR dam (OB-24, OB-28, OB-29, and OB-31), whose locations are shown in Figure 6. These four observation wells were removed in September 2018 as part of the permitted FAR closure activities, and thus recent data is not available.

The average FAR pond water level for 2019 was 665.7 feet above MSL with a standard deviation of 2.1 feet. In 2014, as part of the FAR closure, the water elevation in the pond was gradually lowered to approximately 664 feet (±1 foot). In 2017, an operational change was made such that the pond water level was no longer maintained by the spillway discharge structure, but is now maintained by a float controlled dewatering pump on the north side of the pond shoreline, with siphons as backup.

5.2.2 Seepage Measurement Weirs

Three V-notch weirs, labeled VW-1, VW-2, and VW-3, were located in a 10-foot wide channel at the toe of the dam (Figure 6), and were originally installed to measure seepage flow from the dam to assess in-situ dam stability. Weirs VW-1 and VW-2 were decommissioned in June 2019. Weir VW-3 remains in place to measure seepage flow from the groin drain of the southern abutment. There was no measureable flow in Weir VW-3 after June 2019, likely as a result of the ongoing construction activities.

The average flow rate and estimated flow rate by each contributing section to the weir from 2019 data is presented in Table 4. The standard deviation is also presented in this table to quantify the variance in the data. As indicated by the standard deviation in measured flow rate, base flow and precipitation events contribute to variations in the measured flow. Average 2019 flow rates in the v-notch weirs were lower when compared to the 2018 flow rates. The lower flow rate in 2019 as likely due to the less precipitation on the days when measurements were made, and reductions in base flow.

Table 4: 2019 Flow Measurement Data from V-Notch Weirs

Weir	Average Flow Rate Measured from Weir (gpm)	Standard Deviation
VW-3	0.13	0.04
VW-2	0.34	0.13
VW-1	0.80	0.16

5.2.3 Slope Inclinometer and Deformation Monuments

Fifteen deformation monuments, labeled SM-6 through SM-20, were installed at the crest, face, intermediate bench, and toe of the dam. Locations of these monuments are shown on Figure 6. These deformation monuments were decommissioned as a result of construction activities for dam closure and measurement ceased in July 2019. A review of available monument deformation data from 2019 indicates that horizontal deformation in the dam is generally in the easterly and northerly direction and has been less than 0.23 inch/year, which is slightly less than the 0.71 inch/year measured in 2018. Reduced movement could be expected as there is reduced pressure (resulting from FAR closure and lowering dam height) on these deformation monuments. The majority of the 2019 readings (for the data collected before the inclinometers were decommissioned) were less than 0.20 inch/year, which is slightly lower than the same median value of 0.29 inch/year for 2018. Average vertical deformation at each monument for 2019 was less than 0.67 inch/year, which is slightly less than the average deformation of 1.17 inch/year measured in 2018. Note the comparisons are based on limited data prior to decommissioning of these inclinometers. There are no noted concerns per the certifying engineer based on the available data this year compared to the historical data in record.

Slope inclinometers SI-1 and SI-2 were located at the former lower bench at about elevation 660 feet. Slope inclinometer data measured at SI-1 for this year indicated very little profile change over depth. Slope inclinometer data at SI-2 also indicated very little profile change over depth. A maximum change of about 0.19 inches at profile depths of 6 feet or shallower was recorded this year; otherwise, very little change was noted. For the data that was measured prior to decommissioning, this is consistent with results from 2018 and indicates that between these years very little change has occurred in these shallower depths. At depths greater than 6 feet very little change was noted as compared to a baseline of 2 inches in November 2015. Compared with historical data, this is within the expected rate of change. There are no noted concerns per the certifying engineer based on the available slope inclinometer data this year compared to the historical data in record.

6. REVIEW OF CCR OPERATING RECORD DOCUMENTS AND PREVIOUS INSPECTION ITEMS

For this inspection report, the following documents were reviewed regarding the status and condition of the Bottom Ash Pond and the Stingy Run FAR, in accordance with the requirements of 40 CFR § 257.83(b)(1)(i):

- 7-day inspection reports for the FAR and BAC for 2019;
- Monthly inspection reports for the FAR and BAC, which also include records of recent instrumentation data for 2019;
- The 2018 Annual Inspection Report for the BAC and FAR, dated January 8, 2019; and
- Other documents that contain information on the design, construction, operation, and condition of the CCR unit, including the FAR Closure Plan, previous instrument data before 2019, and the 2015 through 2017 Annual Inspection Reports.

Based on the review of the available data related to this inspection, there were no identified indications of potential structural weakness, slope instability, drainage or seepage issues, or other adverse conditions that would impact the stability and operation of these CCR units.

7. CONCLUSIONS AND RECOMMENDATIONS

7.1 Addressing 2018 Annual Inspection Items

A review of photographs and repair items from the 2018 Annual Inspection Report included the following recommendations for the BAC: re-seeding bare spots along slopes to re-establish vegetation, repairing erosion rills promptly, and continuing to monitor areas where visual evidence of subsidence or sloughing occurred. For the FAR, the 2018 Annual Inspection Report included the following recommendations: re-seeding bare spots along slope to re-establish vegetation, maintaining the toe channel and clear weirs of debris, regrading the access road along the intermediate bench to properly manage stormwater, and monitoring locations where recent rip rap was placed for signs of activating slips or settlement.

Based on the 2019 annual inspection and a review of weekly and monthly inspection reports, the above-mentioned repair items from the 2018 annual inspection of the BAC have been completed. For the FAR, many of the items listed above were no longer applicable since closure construction and materials removal was underway, including the maintenance of weirs WV-1 and WV-2 (which had been removed), the intermediate bench access road that is currently undergoing regrading, and locations on the western slope where slips and settlement were noted. The Plant has consistently and promptly addressed areas that require attention, as noted in the weekly and monthly inspection reports.

7.2 Recommendations for 2019

7.2.1 Bottom Ash Complex

ERM provides the following recommendations for the BAP based on the 2019 annual inspection:

1. The identified minor periodic settlement holes along the alignment of the BAC discharge pipe (Photograph 34) should be investigated in the first quarter of 2020 as weather conditions allow to assess the subsurface condition of the pipe and surrounding soils, and to assess the root cause of the surface expressions noted. Particular attention should be paid to pipe joints and connection bands if present, and other causes should also be evaluated if pipe leakage is not evident. Throughout 2020, continued monitoring of the settlement holes for any increase in size or the development of openings to the subsurface should be continued, and based on the results of the evaluation, an appropriate remedy implemented.
2. The identified former culvert (now partially crushed and filled with soil) near the access to the BAC embankment crest (Photograph 4) should be partially removed and backfilled on the interior of the embankment. The exposed cut off pipe (former culvert) within the BAP should be removed to a minimum depth of 3 feet below surface grade. The remaining cut off pipe should be plugged with concrete for a minimum thickness of 12 inches. The excavation should be backfilled using maximum 6 inch lifts using native clean cohesive soils (e.g. clays). Compaction with mechanical methods (i.e. jumping jack or similar) is recommended once the concrete has cured for at least 7 days. All disturbed soils should be limed, fertilized, seeded and covered with erosion matting to serve as mulch. The exposed end of the culvert pipe on the exterior of the BAP embankment should be cut off below the top soil grade and can be filled with concrete to avoid damage to mowing vehicle tires. It is recommended that the pipe be perforated in a few spots or a small weep hole be left in the downstream plug to allow for any accumulated water in the remaining pipe to bleed out.
3. Re-seed localized bare spots along slope to reestablish vegetation. Revegetation and potential application of nutrients or pH adjustment may be applied as necessary to aid in revegetating localized areas where bottom ash has been placed.
4. Repair erosion rills promptly and continue to monitor areas where rills or gullies have formed.

5. Continue to monitor for locations along the slope where subsidence or sloughing might occur, and inspect the tow of all slopes for potential seepage. Particular attention should be given to the area identified along the western exterior bank in this report that appear to have exhibited some movement in the recent past but has since stabilized and indicates no active or continued movement. Locations that are hummocky in nature currently do not appear active, but should also be monitored for any new signs of soil movement.
6. Monitor the isolated area of apparent shallow soil sloughing in the northwest corner of the Reclaim Pond. The toe of this pond is buttressed with rip rap, the impacted area is isolated and small, and there was no visual evidence of tension cracks or that a slip was developing at the time of inspection. This sloughing is likely a result of regrading activities. It is recommended that this area be monitored, and appropriate corrective action should be implemented by the Plant if it appears that the active movement of soils is observed.
7. The weekly and monthly inspections continue to point out any areas that require attention, which in turn have been documented and addressed in a timely fashion. It is recommended that the Plant continue these Best Management Practices.

7.2.2 Stingy Run Fly Ash Reservoir

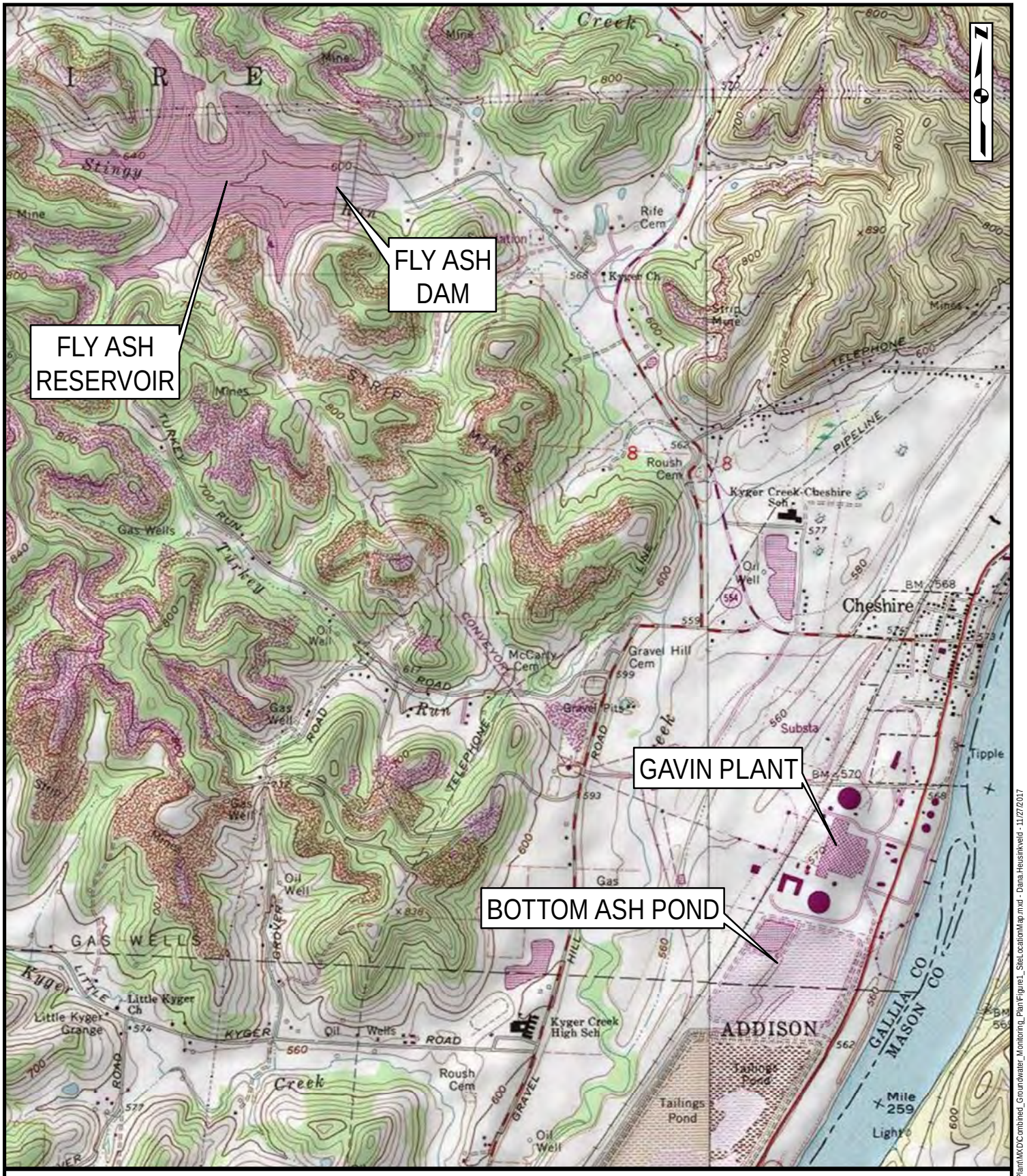
The annual inspection occurred when the Stingy Run Fly Ash Reservoir was an active construction site; therefore, these recommendations are based on the conditions at the time of inspection and do not necessarily represent or encompass the final site condition. ERM provides the following recommendations for the FAR based on the 2019 inspection:

1. The weekly and monthly inspections should continue to point out any deficiencies, which should be documented and addressed in a timely fashion. It is recommended that the Plant continue this Best Management Practice.
2. Re-seed any localized bare spots that have achieved final grade or will not be temporarily disturbed along the slopes to re-establish vegetation. Temporary stabilization measures should be considered for areas that are not going to be disturbed for extended periods of time and temporary stockpiles.
3. Maintain the channel at the downstream toe of the embankment and clear weir WV-3 of any debris.
4. Continue to maintain the crest elevation of the FAR embankment at an elevation of 691 feet AMSL or the 100-year floodplain elevation to provide adequate reservoir capacity and freeboard during decommissioning and FAR closure until completion of the concrete spillway in accordance with the issued permit to install.

7.3 CONCLUSIONS

Overall, the 2019 annual inspection indicated that the BAP and FAR CCR units are in satisfactory operating condition and stable. Due to the construction activities taking place at the FAR CCR unit, these visual inspections were based on the conditions observed at the time of the inspection. ERM has identified one assessment item at the BAC discharge pipe requiring attention and several minor recommendations regarding repair and maintenance at the CCR units, as listed above in Sections 7.2.1 and 7.2.2. The weekly and monthly inspections have been effective at identifying and documenting areas requiring attention, and the Plant should continue the practice of promptly implementing the required maintenance. The assessment of the settlement holes in the soil near the BAC discharge pipe should be accomplished during the first quarter of 2020, at which time additional recommendations will be made as warranted. Other recommendations for repair, while not critical to the current stability or the safe operation of the BAP or FAR, should be made as part of on-going maintenance activities throughout 2020.

FIGURES



0 0.15 0.3 0.45 0.6 Miles

1:24,000

Figure 1: Site Location Map
Gavin Power LLC
Cheshire, Ohio

SOURCE
USGS scanned topographic quad maps provided by National Geographic Society (© 2017).

ERM

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Legend

- Active Piezometer Location

NOTES:

1. Locations are approximate
2. Aerial Imagery: ESRI World Imagery Reproduced under license in ArcGIS 10.7

N

0 100 200 400 600

Feet

Figure 2: Bottom Ash Complex Site Layout
Gavin Power LLC
Cheshire, Ohio

ERM

Q:\Boston\Team\DMMV\Clients_F_K\Gavin\GavinPowerPlant\MXD\AnnualEngineeringInspection\Report\DRAWING\20190[illegible]Figure2_BottomAshPond_SiteLayout_2020107.mxd

NOTES:
1. Locations are approximate
2. Aerial Imagery: ESRI World Imagery
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N

0 200 400 800 1,200
Feet

Figure 3: Stingy Run Fly Ash Reservoir Site Layout
Gavin Power LLC
Cheshire, Ohio

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DRAWN BY: MAW

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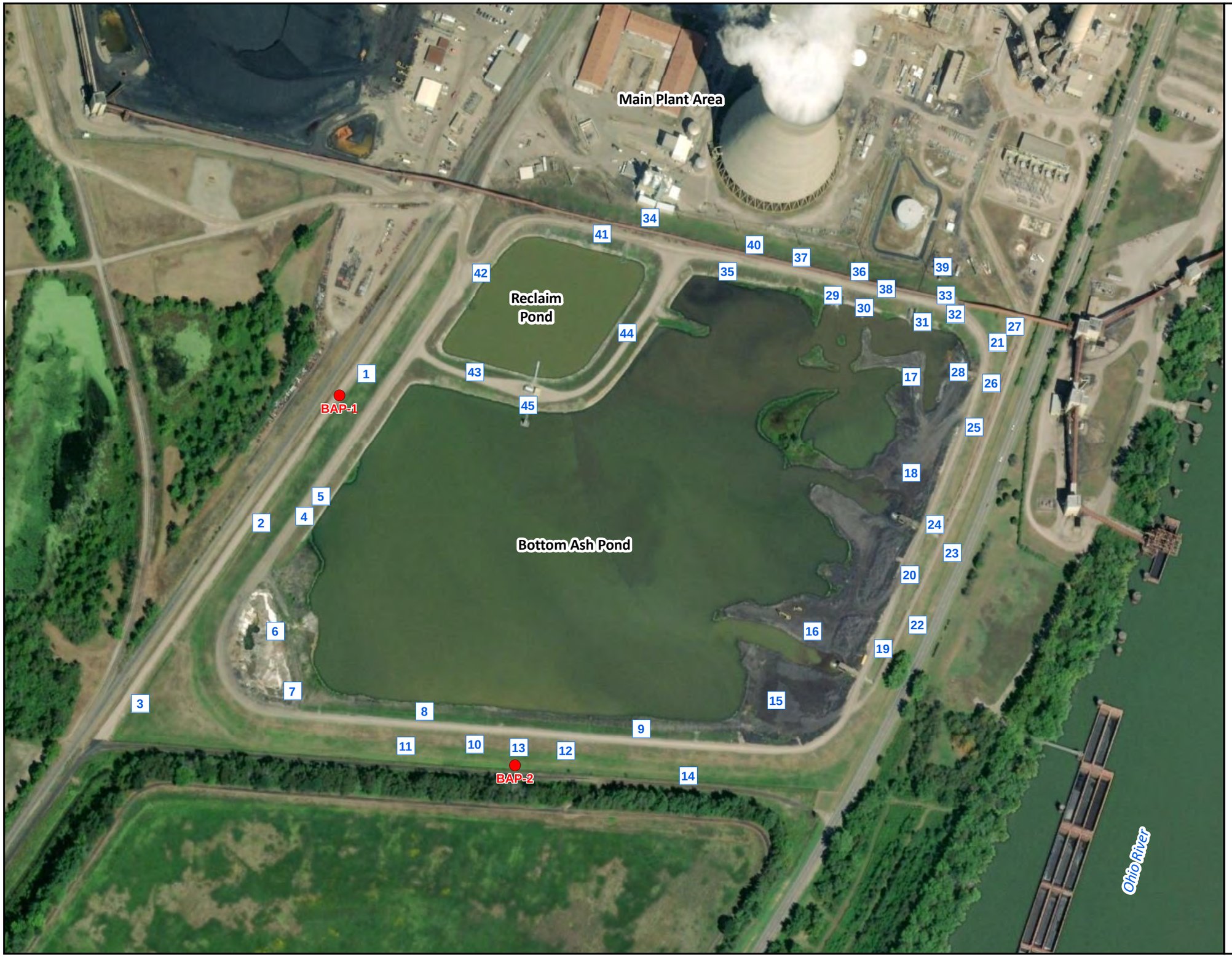

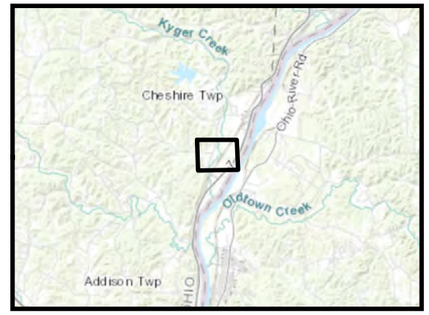

Legend

- # Photograph Location
- Active Piezometer Location

NOTES:
1. Locations are approximate
2. Aerial Imagery: ESRI World Imagery
Reproduced under license in ArcGIS 10.7

N

0 95 190 380 570
Feet

Figure 4: Visual Inspection Map
Bottom Ash Complex
Reservoir Site Layout
Gavin Power LLC
Cheshire, Ohio

ERM

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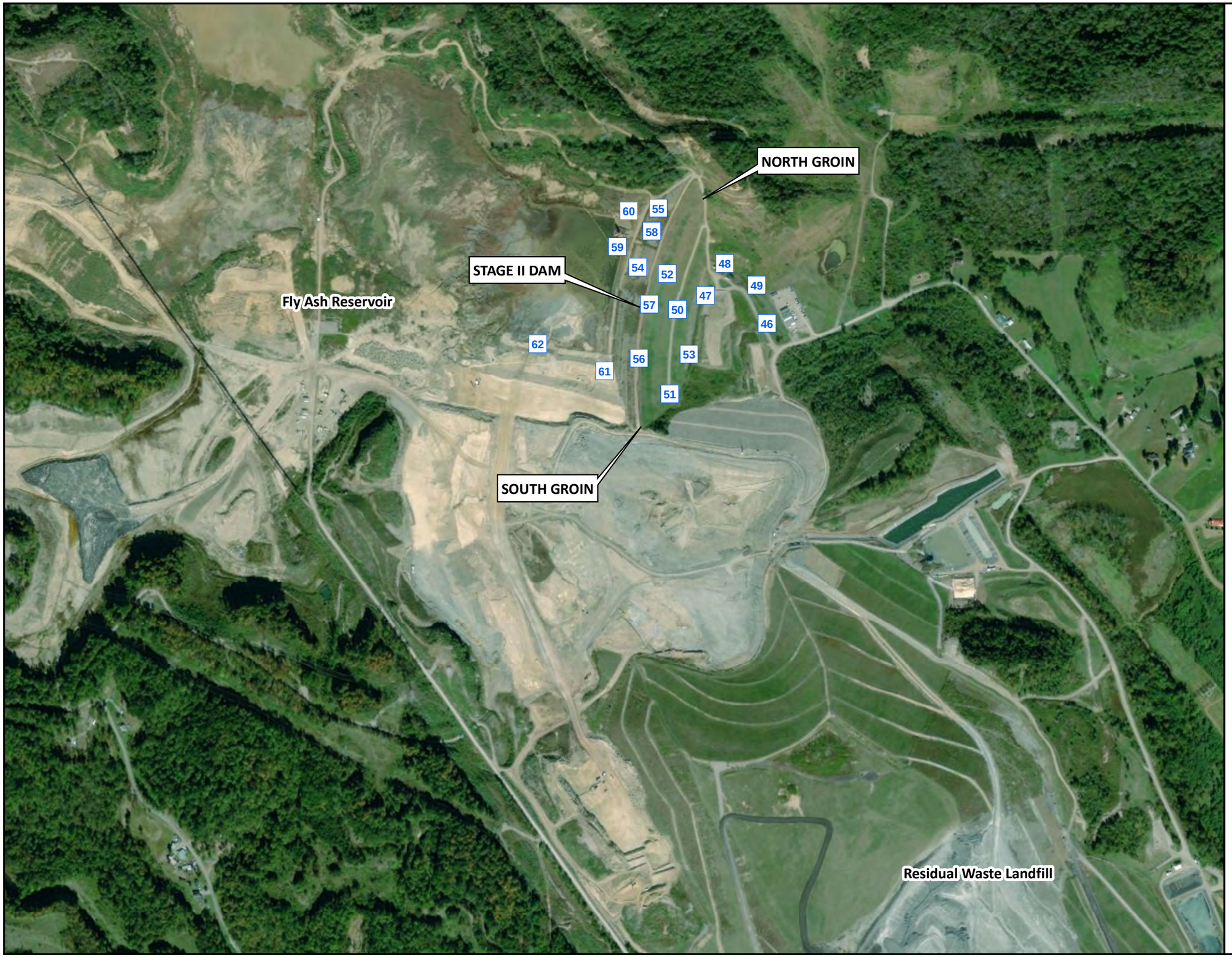

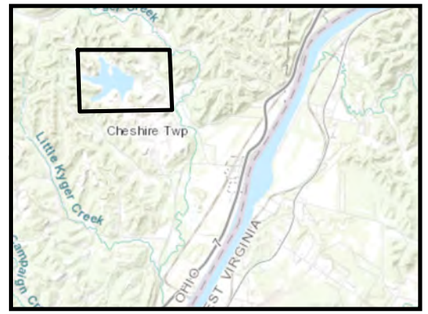

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[#] Photograph Location

NOTES:
1. Locations are approximate
2. Aerial Imagery: ESRI World Imagery
Reproduced under license in ArcGIS 10.7

N

0 200 400 800 1,200
Feet

Figure 5: Stingy Run Fly Ash Reservoir Visual Inspection Map
Gavin Power LLC
Cheshire, Ohio

ERM

DRAWN BY: MAW

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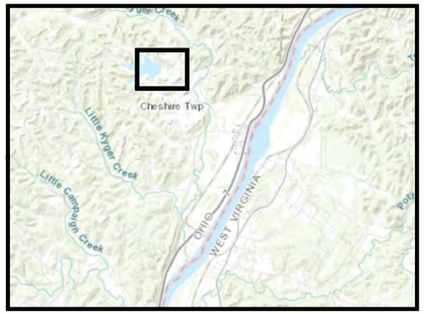

Legend

- Observation Well
- Settlement Monument
- Slope Inclinometer
- V-notched Weir

NOTES:
1. Locations are approximate
2. Aerial Imagery: ESRI World Imagery
   Reproduced under license in ArcGIS 10.4

N

0 80 160 320 480 640
Feet

Figure 6: Monitoring Instrument Map
Stingy Run Fly Ash Reservoir
Gavin Power LLC
Cheshire, Ohio

ERM

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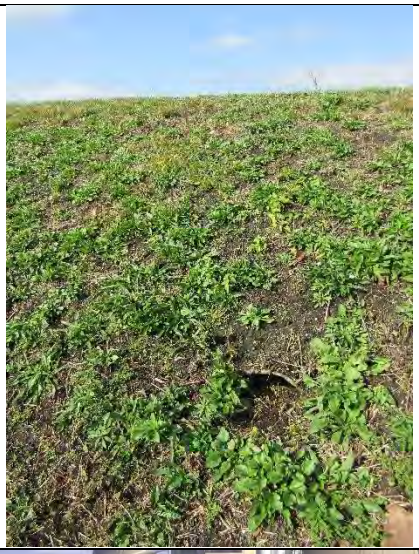
APPENDIX A ANNUAL INSPECTION PHOTOGRAPHS

Bottom Ash Pond Complex

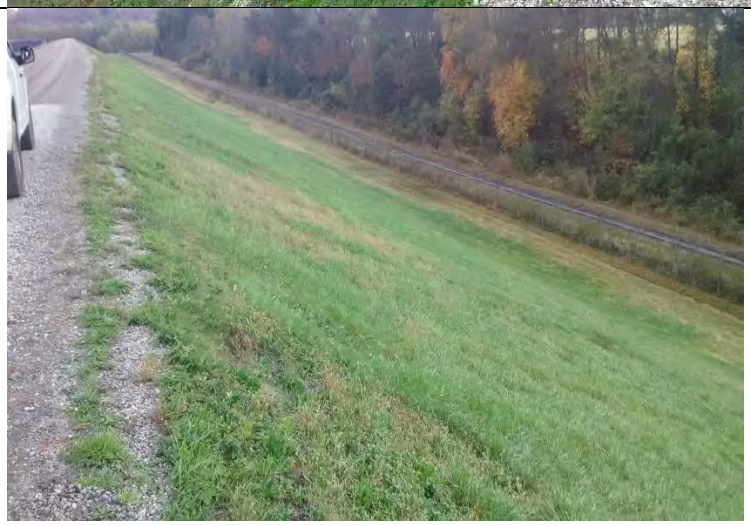
West Dike

Photograph #1 Condition of outer bank along west edge embankment and drainage ditch including apparent inactive earthen bulge along slope (looking north).	
Photograph #2 Condition of outer bank and drainage ditch along west edge (looking south). To south and along a portion of the exterior west bank, there appeared to be a recent surficial slip that had been recently repaired. Note, the bulge near the toe and the grading work near the crest. At time of inspection, there appeared to be no active signs of movement for this surficial slip.	
Photograph #3 Condition of exterior southwest corner and drainage (looking northeast)	

Photograph #4 View of remnant culvert pipe, currently plugged with soil (looking east).	
Photograph #5 Slope of interior embankment (looking north). The slope appears well vegetated with a few less well vegetated spots.	
Photograph #6 Residual coal ash piles along inner slope of west dike (looking east).	

South Dike

Photograph #7 View of interior embankment including crest and slope (looking west).	
Photograph #8 View of interior embankment (looking east). A few rills were noted during the inspection	
Photograph #9 View eastern interior slope (looking southeast).	

Photograph #10 View of slopes on the western half of exterior embankment (looking east)	
Photograph #11 View of slope on the western half of exterior embankment (looking south).	
Photograph #12 View of slopes on the eastern half of exterior embankment (looking west)	

Photograph #13 View of the toe along exterior portion of embankment and drainage swale (looking north).	
Photograph #14 View of sparsely vegetated low area at western toe of exterior bank (looking east).	
Photograph #15 View along southeastern side (looking southeast).	

Photograph #16	
View along southeastern side during active dredging operation (looking southwest).	

Eastern Embankment

Photograph #17 Overview look of bottom ash management area (looking east).	
Photograph #18 Ash slurry sluice pipes and support structure (looking east).	
Photograph #19 Conditions on southern side of eastern embankment and discharge pipes (looking north).	

Photograph #20	
Conditions on northern side of eastern embankment and discharge pipes (looking north).	
Photograph #21	
Conditions on northeast side of eastern embankment and discharge pipes (looking southwest).	
Photograph #22	
View of vegetative coverage on southern side of exterior eastern embankment (looking east). The sloughing noted from last year's inspection did not have signs of recent movement.	

Photograph #23 Condition of edge of eastern embankment along drainage swale and fence line (looking north).	
Photograph #24 View of vegetative coverage of upper exterior eastern embankment (looking northwest).	
Photograph #25 View of vegetative coverage of upper exterior eastern embankment (looking southeast).	

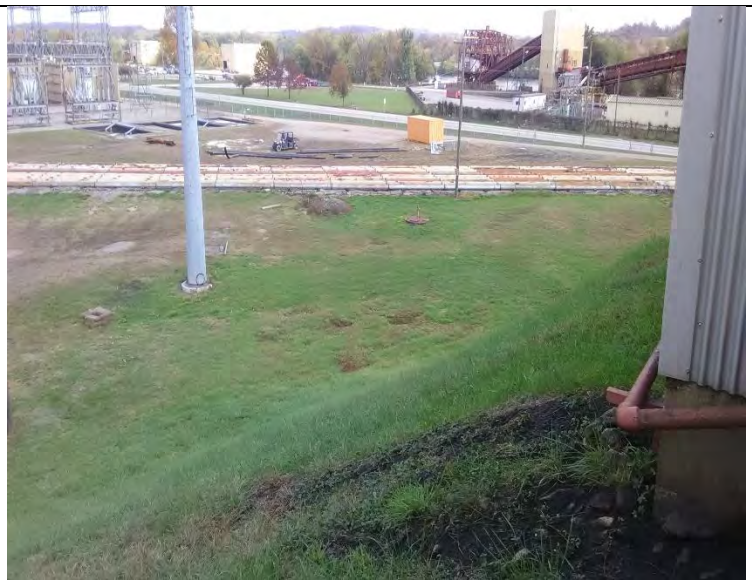
Photograph #26 View of discharge pipes and slope on eastern embankment (looking west).	
Photograph #27 View of toe along fence line (looking south).	
Photograph #28 View of spillway and interior slope of embankment (looking west).	

Northern Embankment

Photograph #29 View of discharge pipes and support structure (looking southeast).	
Photograph #30 View of discharge pipes and support structure (looking south).	
Photograph #31 View of interior slope crest, toe, slope, and spillway (looking east).	

Photograph #32 View of northeast exterior slope and access road (looking south).	
Photograph #33 View of exterior slope with localized bare spot with wet/saturated surface on exterior toe (looking east).	
Photograph #34 Two apparent settlement holes spaced approximately 15 feet apart near to, but outside and north of, the toe of dam and along where discharge pipe runs (looking west).	

Photograph #35 View of toe, slope and crest of i embankment on eastern side (looking east)	
Photograph #36 View of eastern slope of exterior embankment and view of bare spot at toe (looking north).	
Photograph #37 View of crest of exterior embankment (looking west).	

Photograph #38 View of exterior slope (looking north). At crest of the slope, there were localized bare spots.	
Photograph #39 Localized wet spot near to toe of exterior slope (looking south).	
Photograph #40 View of western portion of exterior slope (looking west).	

Reclaim Pond

Photograph #41 View of Reclaim Pond and interior embankment (looking west).	
Photograph #42 View of localized limited vegetation along interior embankment crest (looking northeast).	
Photograph #43 View of interior slope with limited bare spots and riprap toe (looking east).	

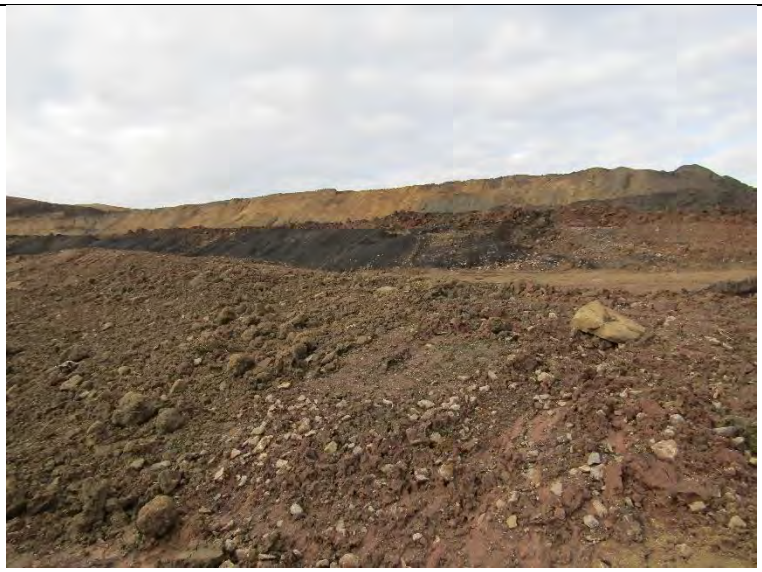
Photograph #44 View of interior embankment and discharge pipes and support structure (looking north).	
Photograph #45 View of inlet structure to BAC (looking east).	

Stingy Run Fly Ash Reservoir

Toe of Dam and Construction of Spillway

Photograph #46 View of access road coming onto closure construction at FAR (looking west).	
Photograph #47 View of discharge coming out of V-notched weir, VW-3 (looking north).	
Photograph #48 View of mixing point and overflow weir to Stingy Creek (looking west).	

Photograph 49 Overview of FAR Closure construction process (looking west).	
Photograph #50 View of northern portion of dam slope from toe looking at construction progress of spillway (looking north).	

Photograph #51 View at toe of construction near to the south groin (looking west).	
Photograph #52 View of construction activities and grading upslope of the spillway. This is approximately at the location where the middle bench existed during the previous 2018 annual engineering inspection. (looking west)	
Photograph #53 View of drainage channel along toe. V-notched weirs WV-1 and WV-2 have been taken out and rock check dams have been put in place (looking south).	

Crest of Dam

Photograph #54 Crest of dam where elevation has been lowered significant as intermediate staged grading as part of FAR Closure Plan (looking south).	
Photograph #55 View of lowered crest and view of northern groin of dam (looking north). Note, truck is pictured for scale of difference in elevations.	
Photograph #56 View of lowered crest and view of southern groin of dam (looking south).	

Photograph #57 View of grading activities from crest of dam (looking east).	
Photograph #58 View of grading along crest of dam to the east (looking southeast).	

Fly Ash Pond

Photograph #59 View of drain platform (looking southeast).	
Photograph #60 View of siphon pump system used to control water level of pond and drain platform (looking soutwest).	

Photograph #61	
Grading and hauling activities near south groin (looking south).	
Photograph #62	
View of expansion of landfill grading and capping across Fly Ash Pond (looking southwest).	

APPENDIX B QUALITATIVE INSPECTION TERMS

1.0 SUMMARY OF QUALITATIVE VISUAL INSPECTION TERMS

The terms described below are used to describe the overall condition and/or appearance of an observed embankment, structure, activity, or item. These terms are intended to give an overall qualitative judgment of the particular item. Please note, some of the terms described below were not used in this year's inspection, but are included as a comparative reference.

Satisfactory: A condition or activity that meets what would be minimally anticipated or expected from a stability, maintenance, or design viewpoint.

Poor: A condition or activity that does not meet what would be minimally anticipated or expected from a stability, maintenance, or design viewport. If a rating of "poor" is assigned, then corrective action is required in as timely a manner as possible.

Minor: A reference to an item or activity where the current maintenance condition is below what is normally desired, but does not cause concern from a stability of safety viewpoint. Generally, these conditions would be identified and could be remedied through the normal maintenance process.

Significant: A reference to an item or activity which would impact the stability or daily operating conditions of the CCR unit. Generally, significant features develop over time and would likely be a result of maintenance not occurring when minor deficiencies were first noted. If left unchecked, such conditions could eventually be a concern for the stability and safety of the CCR unit.

Excessive: A reference to an item or activity that is much worse than what is normal or desired and is of immediate concern to the stability or safety of the CCR unit. Such a condition may also impact the ability of the inspector to properly evaluate the particular item or area.

APPENDIX C RECENT INSTRUMENTATION DATA

Figure C-1. Water elevation as measured at pond surfaces and observation wells BAP-1 and BAP-2 in 2019.

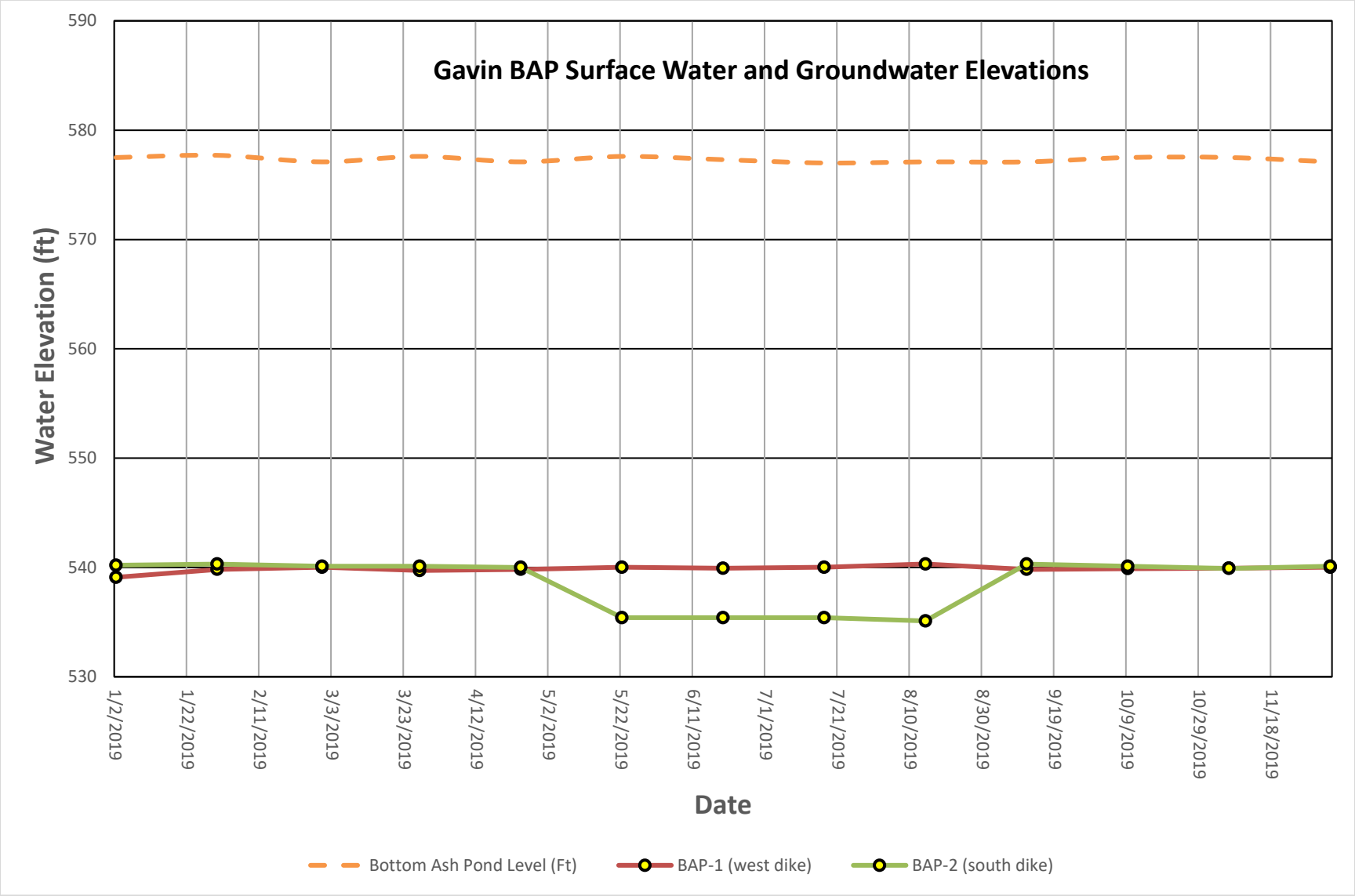
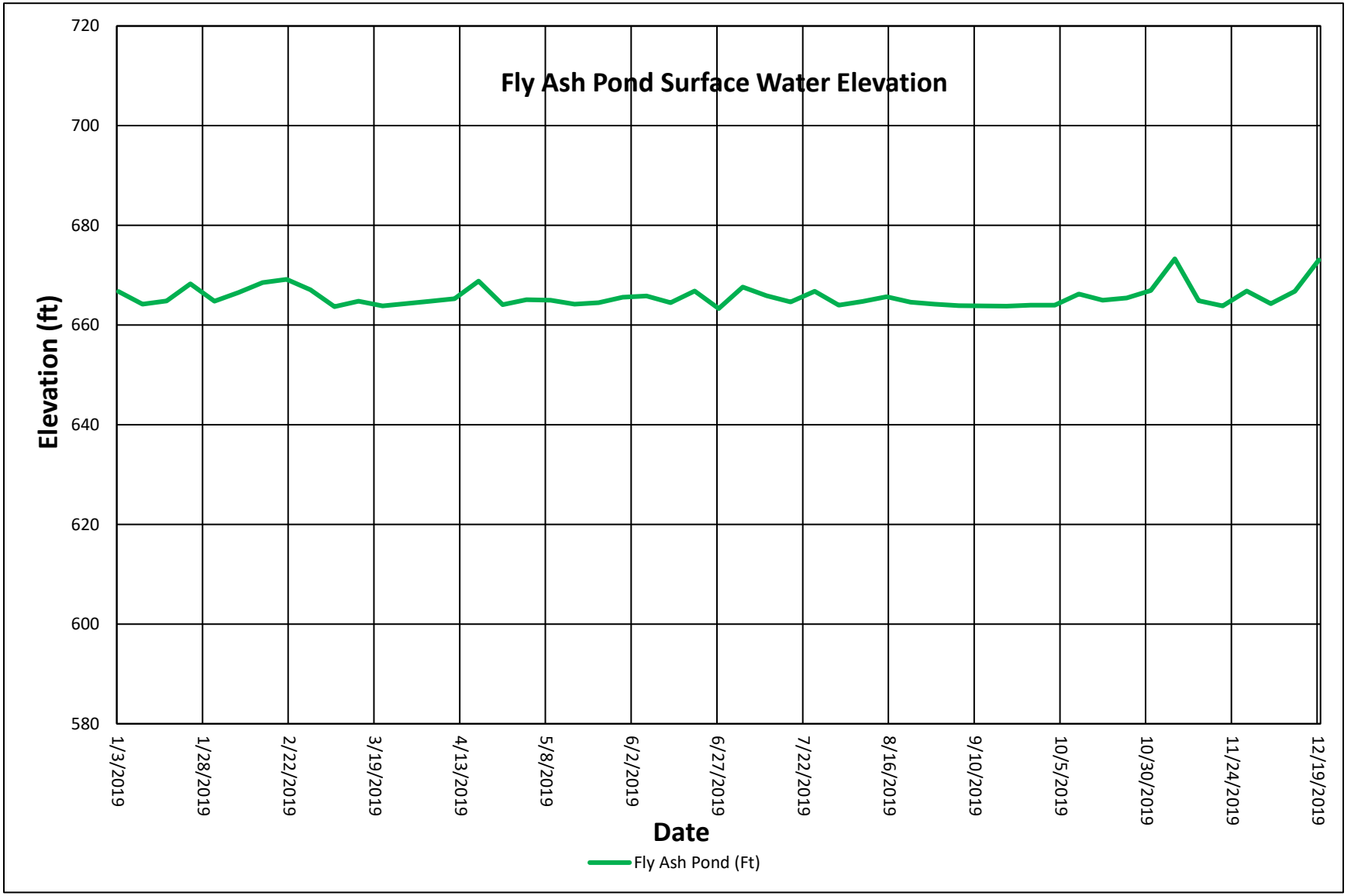


Figure C-2. Water elevation as measured at FAR pond surface in 2019.



APPENDIX D PROFESSIONAL ENGINEER CERTIFICATION

1.0 PROFESSIONAL ENGINEER CERTIFICATION

I hereby certify that I or an agent under my review has prepared this Annual Inspection Report for the Bottom Ash Complex and Stingy Run Fly Ash Reservoir, and am familiar with the provisions of the final rule to regulate the disposal of coal combustion residuals (CCR). I attest that this Report has been prepared in accordance with good engineering practices and meets the intent of 40 CFR 257.83(b). To the best of my knowledge, the information contained in this Report is true, complete, and accurate.

_____

James A. Hemme, P.E.
State of Ohio License No.: 72851

Date: _____1/8/2020_____

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