2020 Annual Inspection Report

Gavin Power, LLC

Residual Waste Landfill

Gavin Power Plant
Cheshire, Ohio

08 January 2021

Project No.: 0545239

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2020 Annual Inspection Report

Residual Waste Landfill
Gavin Power Plant
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*		 Lee Klocke EIT *Consultant I, Engineering*

ERM Consulting & Engineering, Inc.
One Beacon Street, 5th Floor
Boston, Massachusetts 02108

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Acronyms and Abbreviations

CCR	Coal Combustion Residual
CFR	Code of Federal Regulations
Charah	Charah Solutions, Inc.
ERM	ERM Consulting & Engineering, Inc.
FGD	Flue Gas Desulfurization
OEPA	Ohio Environmental Protection Agency
Plant	Gavin Power Plant
PTI	Permit to install
PVC	Polyvinyl chloride
RWL	Residual Waste Landfill

1. INTRODUCTION

The Residual Waste Landfill (RWL) at the Gavin Power Plant (Plant) in Cheshire, Ohio, is subject to the Code of Federal Regulations (CFR) Title 40, 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 operating CCR landfills. In addition, any lateral expansion of the CCR unit that occurs between annual inspection reports must be examined and included in the subsequent annual inspection report.

This Annual Inspection Report of the RWL has been prepared by ERM Consulting & Engineering, Inc. (ERM) to comply with these requirements of the CCR Rule, 40 CFR § 257.84.

1.1 Summary of Conditions of Annual Inspection

The annual inspection of the RWL was performed by Mr. James Hemme, P. E., the certifying Professional Engineer in the State of Ohio, and Mr. Lee Klocke, E.I.T., an engineer-in-training, both of ERM. Mr. Colin McKean, Landfill Process Owner at Gavin Power, is the facility contact and supported the inspection activities. Other members of the Gavin Power team assisted with logistics and provided data for the completion of the inspection and report.

The inspection for the RWL was performed on 30 October 2020. Weather consisted of lightly to fully overcast skies and light wind, and temperatures ranged from 48 degrees Fahrenheit to 60 degrees Fahrenheit. The inspection was initiated with a safety briefing with the on-site landfill operator, Charah Solutions, Inc. (Charah), and a discussion of work currently occurring at the facility.

The RWL is currently undergoing horizontal and vertical expansion. Therefore, construction activities were observed during the inspection. The inspection route started at the southern end of the RWL at Pond No. 2 and associated vertical flow wetlands, and progressed to the northeast toward Pond No. 3 and No. 5, including the vertical wetlands for these ponds (**Figure 1)**. ERM then proceeded to Pond No. 1 and associated vertical flow wetlands, and thereafter across the RWL to the center of the site and the approximate center of the current vertical expansion. ERM then proceeded to the southeast to observe the Flue Gas Desulfurization (FGD) stack-out/load out pad, and to the north along the eastern access roads to observe Phase H lateral expansion of the RWL. Mass excavation for a new Phase I and Pond 6 at the far northern end of the planned facility was occurring at the time of the site visit. Pond 6, which is associated with the Phase I landfill expansion, was also under construction with high-density polyethylene (HDPE) geomembrane material in place and a concrete floor slab partially completed in the pond bottom. For expansion of the RWL, the construction activities were observed from the roadway at a safe distance. CCR material was actively being hauled to the Phase H area, (approved by Ohio Environmental Protection Agency [OEPA] in January 2019) at the time of the inspection. Maintenance activities near the ponds and on the roadways were observed as documented in the report.

1.2 Regulatory Cross-Reference Table

In compliance with 40 CFR § 257.84(b)(1), this inspection and inspection report for the RWL was completed by James Hemme, a qualified Professional Engineer in the State of Ohio. **Table 1**, below, is a regulatory cross-reference table that describes the inspection requirements and the location of these requirements in this report.

Table 1: Federal Regulatory Requirement Cross-Reference Table

Federal Regulatory Requirement Summary	Location in the Annual Report
§ 257.84(b)—Annual inspections by a qualified professional engineer	Sections 1.1 and 1.2
§ 257.84(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., the results of inspections by a qualified person, and results of previous annual inspections)	Section 4
§ 257.84(b)(1)(ii)—A visual inspection of the CCR unit to identify signs of distress or malfunction of the CCR unit	Section 3
§ 257.84(b)(2)(i)—Any changes in geometry of the structure since the previous annual inspection	Section 3
§ 257.84(b)(2)(ii)—The approximate volume of CCR contained in the unit at time of the inspection	Section 2.1
§ 257.84(b)(2)(iii)—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	Section 3; Appendix A
§ 257.84(b)(2)(iv)—Any other change(s) which may have affected the stability or operation of the impounding structure since the previous annual inspection	Section 5.3; Appendix A

2. GAVIN PLANT INFORMATION

2.1 Facility Overview

The Gavin Power Plant is located in Gallia County, Ohio, immediately south of Cheshire, Ohio, and adjacent to State Route 7. The Plant is also adjacent to the western shoreline of the Ohio River. Nearby towns, include Addison, Ohio, and Point Pleasant, West Virginia. The RWL is located northwest of the Plant, as depicted with the current permitted waste boundaries on **Figure 1**.

The RWL is permitted by the OEPA to accept and dispose of CCR material as a Class 3 Landfill. Approximately 98 percent of this material is FGD by-product (consisting of scrubber cake, fly ash, and lime) and 2 percent other approved disposal materials (bottom ash, lime ball mill rejects, coal pulverizer rejects, bottom ash pond sediments, and sand/moss mixture from the vertical flow wetlands).

In 1994, the RWL was permitted for a capacity of 49 million cubic yards. In 2014, the RWL was authorized to expand horizontally and vertically, under Permit-to-Install (PTI) #06-08447, increasing the capacity of the RWL by 45.5 million cubic yards to a total of 94.5 million cubic yards. In 2020, the facility reported an estimated disposal volume of 1.825 million cubic yards (~2.28 million tons) of CCR. The RWL currently contains approximately 56.9 million cubic yards of CCR.

Construction under the PTI has been ongoing since 2016, which is performed and certified by a third party. Construction will proceed in phases until completion. The RWL has already completed construction of the leachate/sedimentation Pond No. 5 and vertical flow wetlands associated with landfill pond outfalls for Ponds 1, 2 and 3. Since the 2019 inspection, the RWL has continued engaging in lateral expansion construction activities for Phase I in the approximate areas depicted on **Figure 2**.

Since the previous inspection, Phase H, located in the northeast sector of the landfill, has continued being filled uniformly with FGD. The active surface, i.e., the top of the FGD, is sloped mildly (estimated 1-2%) to assure maintaining positive drainage for surface water run-off. The height of the active surface was several feet above the level of the surrounding access road compared to the last annual report.

The liner system in Phase H, from the top downward, consists of:

- a geonet composite leachate collection/drainage layer on the slopes and a 12-inch thick rounded gravel leachate collection layer;
- a 30-mil polyvinyl chloride (PVC) geomembrane; and
- a reinforced geosynthetic clay liner overlying a prepared soil subgrade consisting of native soil materials.

The liner system components visually observed in the 2018 annual inspection are no longer visible and adequately protected from erosion, wind, and damage through placement of initial protective layer of bottom ash or FGD observed in 2019 annual inspection.

In January of 2019, the Plant received approval from OEPA to construct Phase I of the RWL prior to Phase G. Bulk excavation activities observed during the October 2019 inspection in Phase I have completed and progressed to final grading and the liner system construction activities observed during this inspection.

During the 2019 inspection, a stockpile of cohesive soils derived from the Fly Ash Reservoir embankment during its decommissioning was observed in the RWL. During this inspection, the stockpile material was partially used for the re-compacted soil barrier in Pond 6. The remainder of this soil is expected to be used in 2021 to achieve final grade and ancillary activities within Phase I.

2.2 Residual Waste Landfill Operations

Charah is the current contractor for RWL operations. Daily operation and site maintenance activities include hauling and distributing CCR, dredging accumulated solids from within settling ponds and channels, placing cover material, and maintaining vegetation. These activities are documented on a daily log that is maintained by Gavin Power. Fugitive dust controls for the landfill operations are implemented based on current site conditions and include watering, using chemical suppressants, controlling the speed of construction vehicles, and cleaning paved roads. On-site haul roads are maintained on a daily basis through the use of motor grader/roller equipment. Bottom ash from the Bottom Ash Pond is applied to the active haul roads and roadways as needed to establish and maintain a smooth and stable surface for traffic. Gavin Power conducts weekly and monthly inspections and reports deficiencies to Charah for repair.

3. RESIDUAL WASTE LANDFILL VISUAL INSPECTION

The annual visual inspection conducted for the RWL is summarized below. Photographs referenced herein are located in **Appendix A**. The approximate locations where the photographs were taken are indicated on **Figure 3**. Qualitative terms used herein to describe the inspection are summarized in **Appendix B**.

Overall, the RWL, the roads, and the construction activities associated with the lateral expansion, to the extent they were observable, were in satisfactory condition (as defined in **Appendix B**) and activities are progressing in general conformance with the PTI. ERM personnel did not observe evidence of obvious settlement, misalignment, significant erosion, tension cracks, or other signs of possible instability, movement, or significant erosion along any of the slopes. ERM did not observe visual evidence indicating that stormwater was impounding in the designated RWL area (except in small sedimentation collection traps) or along roadways. Since the 2019 annual inspection, Phase H has been the predominant location for placement of CCR. Changes in geometry of the RWL were observed during the inspection. The vertical expansion areas (Phase F2 and J) increased in height in isolated areas since the last inspection. CCR placement within the lateral expansion area (Phase H) has continued up to several feet above the height of the surrounding access road.

3.1 Haul and Access Roads

The haul roads across or to the active areas of CCR placement use bottom ash as a base course (as observable in Photographs 1, 2, and 3. This base course appears to compact well and withstands repeated heavy equipment traffic. The haul roads observed by ERM appeared to be stable during the site drive/walkthrough, and there was no visual evidence of significant distress (i.e., rutting or pumping). In addition, the roads generally had positive drainage from the centerline, and there was no visible evidence of ponding water on the roadway surface. Drainage channels paralleling the roadways capture stormwater runoff from adjacent slopes, which is directed to stable outlets that ultimately discharges to the surrounding site treatment ponds. ERM observed sporadic evidence of minor erosion in the channel bottoms, but overall, roadside channels appeared well maintained. ERM observed active cleaning of roadside channels along the eastern haul road during the site visit.

There were several sections of permanent roads that have a gravel base course depicted in Photographs 4, 5, and 6. These roads also appeared to be stable with no visible evidence of distress. More frequently used roadways incorporate robust drainage channels adjacent to slopes, which were positively graded and include rock check dams (Photograph 6 and 7). The drainage channels on the eastern slopes appeared well maintained with no visible evidence of obstructions or deterioration.

The roadside drainage channels on the southwestern slopes exhibited occasional signs of erosion and rilling into the underlying FGD material in areas with temporary vegetated cover. ERM recommends that these individual areas continue to be repaired and monitored per the ongoing maintenance program. If issues persist, increasing the number of rock check dams to reduce channel flow velocities and adding supplemental riprap armoring should be considered and implemented as needed to address the issue. ERM also recommends continued maintenance of the sediment traps below areas where erosion has been noted.

Consistent with observations in 2019, previously identified leachate seeps from 2018 flowing toward Pond 3 continue to be controlled through corrective measures. No further evidence of any seeps were observed at the land surface at this location.

3.2 Slopes and Slope Cover

Approximately 70 percent of the existing slope surface area has received final cover, and 30 percent of the surface area has received intermediate cover. In general, intermediate cover consisted of a 6- to 12-inch-thick layer of soil. The western and northern slopes have received intermediate cover that is well vegetated (Photographs 8, 9, 10 and 11). As portions of the lateral expansion are constructed and filled with CCR, this intermediate cover of soil will be removed and reused for cover in other areas of the landfill. This activity was observed by ERM to be on-going on the northern slope as the level of CCR in Phase H increases in elevation.

There were no observations of actual structural weakness within the RWL (e.g., slips, soil tension cracks, sinkholes) noted during the annual inspection. No indications of residual waste movement changes that might alter the geometry of finished slopes or overall stability of the RWL were identified.

The areas with final cover included a reported minimum 3-foot-thick cap consisting of a 2-foot layer of barrier soil and a 1-foot layer of soil capable of supporting vegetation (Photograph 9). The areas that had received final cover exhibited well-established vegetation.

There were infrequent instances where significant erosion rills/gullies were observed (Photograph 12 and 13) in the surface of the intermediate cover. It appeared that repair attempts were in progress based upon the presence of newly-placed soil near the observed features. Sedimentation was contained, and there was no visible evidence that erosion has the potential to disrupt the operation and safety of the RWL or that observed erosion features were creating an unstable situation.

In the past, the facility performed direct seeding of FGD material, which was only partially successful in establishing vegetation. The facility thereafter began covering these areas with soil to promote more vigorous stands of vegetation. Some FGD direct-seeded areas covered with soil in 2018 and 2019 showed a significant increase in vegetation (Photograph 14). Some areas with FGD direct seeding still exhibit poor vegetative growth, as indicated in Photograph 15, but this was observed to a much-reduced extent when compared to previous inspections. Isolated areas of the slopes, where direct seeding of the placed FGD was attempted, continue to be covered with an intermediate layer of soil to aid in the establishment of vegetation. This was observed to be occurring on the upper portion of eastern slope shown in Photograph 16. The application of this intermediate soil layer as slopes are finished or meet their interim grades can be seen in Photograph 17, 18, 19, and 20.

In stormwater channels, the Plant has successfully utilized riprap, periodic rock check dams, and outlet protection to reduce stormwater velocity and minimize the potential for erosion. There are isolated instances where sedimentation has filled the voids of placed riprap (Photograph 21), which is maintained as needed to minimize sediments reaching the ponds. Erosion rills and gullies were observed to be minimal (Photograph 22), which is evidence that the Plant has successfully controlled stormwater flow on graded slopes within the RWL.

At the top of the RWL, an interim elevation of approximately 965 feet has been reached within Phase F2 and will remain at that elevation until FGD fills in adjacent constructed cells and achieves an equivalent top elevation. Surface water at the summit is managed by chimney drains (Photographs 19 and 23) and by perimeter side slope channels.

3.3 Sedimentation/Leachate Ponds

Four pond units, specifically Pond No. 1, 2, 3, and 5, currently manage sedimentation and stormwater, and treat leachate generated by the RWL. Pond No. 5 is the newest pond and is hydraulically connected to Pond No. 3. The discharge from each of these pond systems consists of a treatment/settlement pond followed by a clarifying pond prior to discharge into a duplex vertical flow wetland treatment system. The vertical flow wetland treatment systems were installed in 2016 and 2017 and have been designed to act

as a filtration system to remove target pollutants not completely removed by the preceding treatment processes. Flow from the clarifying ponds are directed into the vertical flow wetlands through an inlet structure. The effluent from the various vertical flow wetland systems is discharged through a weir and flow meter station off-site in accordance with the Plant National Pollutant Discharge Elimination System permit. Photographs 24–28 from Pond No. 1 depict the vertical wetlands, inlet structure, and flow meter station, which is the same system at Pond No. 2 and 3

3.3.1 Pond No. 1

Pond No. 1 on the south side of the RWL appeared to be functioning properly during the annual inspection. The sedimentation/treatment portion of Pond No. 1 was observed to contain varying amounts of solids within the limits, as observable in Photographs 29, 30, and 31. This pond is routinely cleaned of accumulated solids, typically through the use of extended-reach excavators or a floating dredge. Based on a visual assessment, Pond No. 1 was noted to have a similar amount of sedimentation as observed during the 2019 inspection.

The dredged material from the pond cleaning is typically pumped into dewatering bags located within a geomembrane-lined earthen containment area at an elevation higher than the pond. The filter bags receive the dredged material and retain the particulate matter while allowing water to filter through and return to the pond. When a bag is considered at filled capacity, it is opened, the contents are removed, and the collected material is disposed in the RWL.

There was no active dredging during the inspection, so no dewatering bags were present. The current storage location for the dewatering bags for Pond No. 1 is depicted on Photograph 32. The containment area for the dewatering bags was not retaining stormwater.

A build-up of sediments, aggregate, and vegetation was observed at the inflow channel to Pond No. 1. For maintenance purposes, these materials should be removed and properly disposed. It is projected that gravel washed or physically transported from the access roadway to the north end of the pond may be contributing to the gravel observed in this area of the pond. It is recommended that steps be taken to mitigate the tracking of gravel from the roadway by vehicles and during the application of maintenance aggregate to the surface. Several small tears in the runout portion of the geomembrane at the west central crest of Pond No. 1 were observed (Photograph 33). Additionally, there were multiple small tears and holes identified around the perimeter of Pond No. 1 above the operating water level. No water was standing against these tears, and no discharge through these tears was observed. The small tears identified in the liner noted in the previous inspection have been repaired. ERM recommends that the new tears be repaired by a similar procedure as part of routine maintenance.

3.3.2 Pond No. 2

Pond No. 2 on the southeast side of the RWL was observed to be under repair during the annual inspection. To assist with the removal of FGD solids derived from the stack-out pad and to minimize dredging, Gavin Power operates a concrete settling basin at Pond No. 2 (Photograph 34). This basin is routinely cleaned with an extended-reach excavator.

An elevated pad of bottom ash was observed within the limits of Pond No. 2 which split the pond longitudinally from north to south (Photograph 35). The resulting eastern one-half of the pond was under repair while allowing the western one-half to continue to provide treatment of the incoming leachate. The leachate inflow from the pipe from under the RWL to the west was observed to have been captured and was being pumped to the concrete settling basin. This allowed the leachate to enter the pond through the headworks in combination with runoff from the stacker pad. A smooth bucket, long-reach excavator was operating on top of the bottom ash pad for purposes of cleaning the eastern edge of the pond geomembrane. Portable pumps were being used to drain water from the eastern one-half of the pond to

allow for flushing of the geomembrane for cleaning prior to repair. Multiple laborers were observed making heat gun/glue patch liner repairs to identified holes on the eastern slope. The southeastern corner of the pond liner was identified to be in poor condition and was being scheduled for a complete panel replacement for several hundred feet along the operating level of the pond. The western one-half of the pond was also observed to have multiple holes and several areas of compromised geomembrane. It appeared that the facility was generally maintaining water levels below these locations. Gavin Power personnel indicated that once the eastern pond repairs were complete, the activities would be reversed for the western pond.

The clarifying pond appeared to be in adequate working condition with only a few minor rips or holes identified in the geomembrane above the water level (Photographs 36).

The vertical flow wetlands for Pond No. 2 appeared to be in general working order; however, water was observed to be more turbid than observed in the past. Gavin Power personnel believes this to possibly be related to the churning associated with dewatering activities associated with the Pond No. 2 geomembrane repairs and the temporary condition of decreased detention time (Photograph 37).

Repairs to the eastern portion of the liner and water level management in Pond 2 have continued since the site inspection per communication with the site in late December 2020. Preparations for repair of the remaining portion of the Pond 2 liner are underway to implement in early 2021.

3.3.3 Pond No. 3

Pond No. 3 on the northeast side of the RWL was observed to be functioning satisfactorily during the annual inspection. Within Pond No. 3 there was vegetation observed within the central portion and along the western end as indicated in Photographs 38 and 39 (closest to the RWL), similar to the observations in the 2019 inspection. Pond No. 3 appears to have accumulated more solids in the open water portion of the pond since the previous annual inspection. This is based on observation that the solids level appeared to be just below the operating water level in several locations. Hydrogen peroxide was observed being added at the leachate inflow point this pond resulting in elemental Sulphur and white colored solids accumulating near the headworks of the pond. A small number of minor holes and tears were noted above the operating level of the main pond.

Within the clarifying pond, multiple holes and tears were identified in the geomembrane during the inspection with some having vegetative growth from beneath. Surficial layers of a protective PVC geomembrane were also suggesting significant levels of deterioration. This surficial PVC geomembrane was installed at some time in the past for ultraviolet protection over the primary geomembrane in the Pond No. 3 clarifying pond. (Photograph 40), and therefore is deemed to be a sacrificial layer. The tears and holes identified in the liner within the clarifying pond appear to be above the normal operating level.

3.3.4 Pond No. 5

Pond No. 5 (Photographs 41 and 42) on the northeast side of the RWL, adjacent to Pond No. 3, was observed to be functioning satisfactorily with respect to water flow and sedimentation during the annual inspection. The section of anchor trench on the southern edge of Pond No. 5 (adjacent to Pond No. 3) identified as being pulled out in the 2019 inspection has been repaired (see photographs 43 and 44). There was no indication of tearing of the geomembrane within the basin. During the inspection it was noted that there was accumulated water under the Pond No. 5 liner system along a limited section of the southwest edge and a much smaller portion of the northwest corner of the pond. This water was evidenced by a slight bulge at an elevation above the operating pond level. In discussions with Gavin Power personnel, a similar accumulation of water was removed during the anchor trench repair. This water was reportedly clear and appeared to be groundwater related. It appears, based on the reappearance of this condition that a perched groundwater condition may exist with a connection to the

Pond 5 area. The source of this water has not been identified but is apparently not from leaking of the pond since it accumulated above the operating level of the facility. The facility has installed slits in the geomembrane several feet above the operating level of the pond for purposes of inserting a suction withdrawal pipe for removal of accumulating water. A small pump is utilized to withdraw this water as needed to avoid stress and uplift pressures on the liner system from accumulated water. During the annual inspection this condition was reported to facility personnel and the facility mobilized laborers immediately to withdraw this water, which was discharged into the pond. There was one small rip and one small perforation identified in the geomembrane near the stormwater inflow in the northwest corner of the pond (Photograph 48). The vertical flow wetlands for Pond No. 3 and No. 5 appeared to be in working condition (Photograph 45).

3.4 Operation

Daily landfill operations are conducted and managed by Charah and overseen by Gavin Power. During the time of the inspection, general maintenance operations were occurring within the facility limits. As required by the PTI issued by OEPA, Gavin Power maintains daily logs of operations and performs daily inspections of the RWL.

Photographs 46 and 47 depict operating conditions at the FGD stack-out pad during the annual inspection. There was minimal FGD production on the day of the inspection, and the material was satisfactorily handled and contained on the pad prior to being loaded into haul trucks. Active disposal operations were occurring in Phase H.

New activities during 2020 included the continued filling activities in Phase H and to a lesser extent in Phase F2. The vertical phase from the prior year (Phase F2) was completed as the FGD material met the interim maximum height of approximately 965 feet. A soil cover was placed on the top of the FGD summit, and vegetation is currently being established. Photographs 10, 19, and 23 depict the placement of the soil cover at this location and the different stages of vegetation established. A series of chimney drains were observed within the summit area to assist in draining excess surface water.

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

As required by 40 CFR § 257.84(b)(1)(i), a review of the operating record regarding the status and condition of the CCR unit includes the results of inspections by a qualified person and results of previous annual inspections. The following documents were reviewed as part of the CCR operating record:

- Ohio EPA Phase “I” before “G” Alteration Request, approval dated 2 January 2019;
- 2019 Landfill Annual Inspection Report, ERM dated 8 January 2020;
- Seven-day qualified person inspection checklists for the RWL;
- American Electric Power Service Corporation (2016). *Gavin Plant Residual Waste Landfill Closure Plan.* Gavin Plant, Cheshire Ohio.
- Gavin Residual Waste Landfill PTI Alteration Request, dated 13 October 2014;
- 2018 OEPA Solid Waste Facility License, processed 6 December 2017; and
- Stability and Settlement Analysis Report pursuant to Ohio Administrative Code 3745-30-05(C)(5), dated 2 November 2012.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Addressing 2019 Annual Inspection Items

ERM reviewed photographs and repair items from the 2019 Annual Inspection Report. This included placing the final cap where final grades have been reached as required by OEPA; repairing identified minor geomembrane perforations, seeding and mulching areas to establish vegetation; repairing erosion areas noted at the permanent capped areas; and continuing to remove sediments from all ponds on an as-needed basis. Based on the 2020 annual inspection and a review of weekly inspection reports, the above-mentioned repair items from the 2019 annual inspection were generally completed or observed as being underway as part of on-going maintenance and repairs. The Plant has consistently addressed items requiring attention that were identified in the weekly inspection reports.

5.2 Recommendations for 2020

ERM provides the following recommendations for the RWL based on the 2020 inspection:

1. Deficiencies identified during weekly inspections should be documented and addressed in a timely manner as a Best Management Practice.
2. Complete placement of intermediate soil cover, seed, and mulch on areas of direct FGD seeding where poor vegetative growth has been experienced. Soil pH and nutrient tests are recommended to target appropriate amounts of lime and fertilizer application to accomplish successful vegetative growth while minimizing the potential for over application.
3. Seed and fertilize localized bare soil areas along completed slopes to aid in the revegetation process, adding soil amendments and lime as needed.
4. Continue to repair erosion gullies and rills as they are encountered. Continue to monitor areas where rills or gullies have formed.
5. The beneficial reuse of the demolition materials (i.e., clean concrete) as a temporary erosion and sediment control within the facility's stormwater management system is encouraged. Supplement these materials with natural or manufactured aggregate and materials as appropriate to enhance performance.
6. Maintain stormwater channels and sediment traps on the southwestern slopes.
7. Fill erosional gullies and add rock check dams and riprap armoring as needed to localized areas where FGD has been exposed.
8. Schedule and commence removal of vegetative growth and sediments from inside Pond No. 1 and No. 3 in appropriate sequence with other ongoing maintenance and repairs. Clean channel inlets on both Pond No. 1 and No. 3 to remove sediment buildup.
9. Complete the substantial repair to the Pond No. 2 geomembrane in an expeditious manner. Document repairs and test these for water tightness, particularly for repairs made below the operating water level.
10. Repair small tears and perforations identified in the geomembranes at Pond No. 1, No. 3 and No. 5. Routinely monitor all ponds for any additional tears and promptly repair when identified.
11. Given the noticeable increase in geomembrane imperfections with this inspection, a testing program to assess the material properties of the current in place geomembrane(s) is recommended. This testing program would consist of a small representative coupon of material being cut from each of the ponds for strength and puncture testing. These results would be compared to the original material

properties to estimate level of deterioration and aid the facility in scheduling repairs, replacement or a switch over to new treatment facilities.

12. Maintain drainage stone around the existing current chimney drains and protect these from sedimentation.
13. Drain water from underneath the pond liner system on the southwest and northwest corner of Pond No. 5 via dewatering perforations. Continue to monitor these portions of the pond for water buildup and drain water buildup when identified to avoid the addition of tension into the geomembrane until a permanent solution is implemented. During 2021, it is recommended to further assess the source of the water gaining entrance underneath the liner system and identify potential steps to prevent the build-up of water under the liner system from occurring in the future. If a correction is identified and implemented, repair the geomembrane dewatering perforations using appropriate patching and leak detection methods once the water source has been identified and further build-up is mitigated.

5.3 Conclusions

The annual inspection and document review indicated that the RWL is in satisfactory operating condition and stable, as defined by the regulations. ERM observed that the lateral expansion excavation for Phase I is being completed and current operational phases are being operated in a satisfactory manner. The facility exhibited satisfactory housekeeping measures. Operators were observed to be performing satisfactory maintenance operations. No changes were observed since the last annual inspection which may affect the stability of the RWL.

The majority of recommendations made above are not critical to the current stability of the RWL, but should be addressed under the Plant maintenance program or as otherwise indicated. The repair of pond liner systems, particularly Pond No. 2, should continue expeditiously and be appropriately documented. The facility should continue to frequently inspect for new perforations after current repairs are complete and anticipate additional geomembrane maintenance requirements in 2021. Further investigation of the liner system in Pond No. 5 should be scheduled and performed within the time frame outlined in Section 5.2.

FIGURES

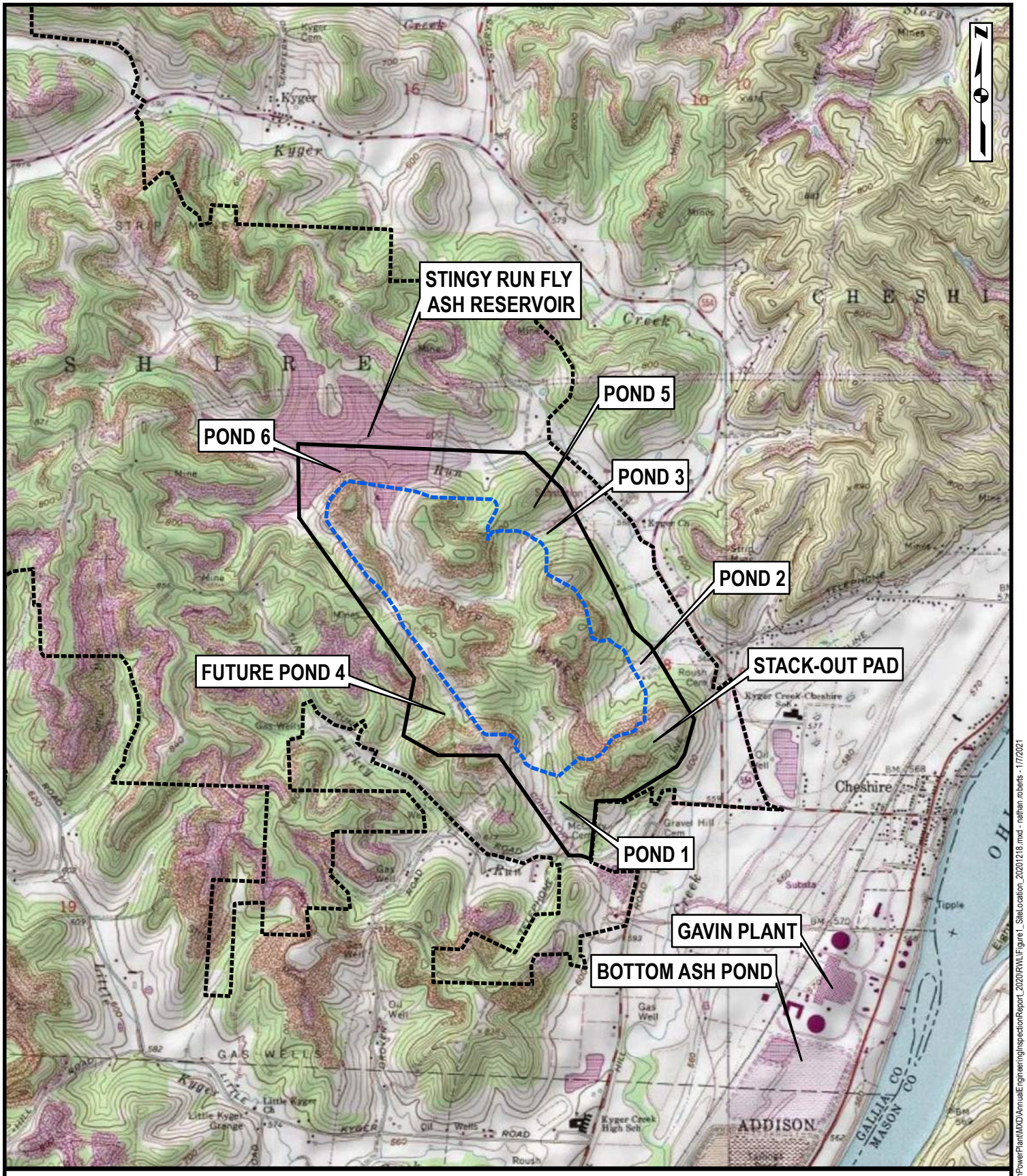

Figure 1: Site Location Map
Gavin Power LLC
Cheshire, Ohio

SOURCE: USGS scanned topographic quad maps provided by National Geographic Society (© 2021).

ERM

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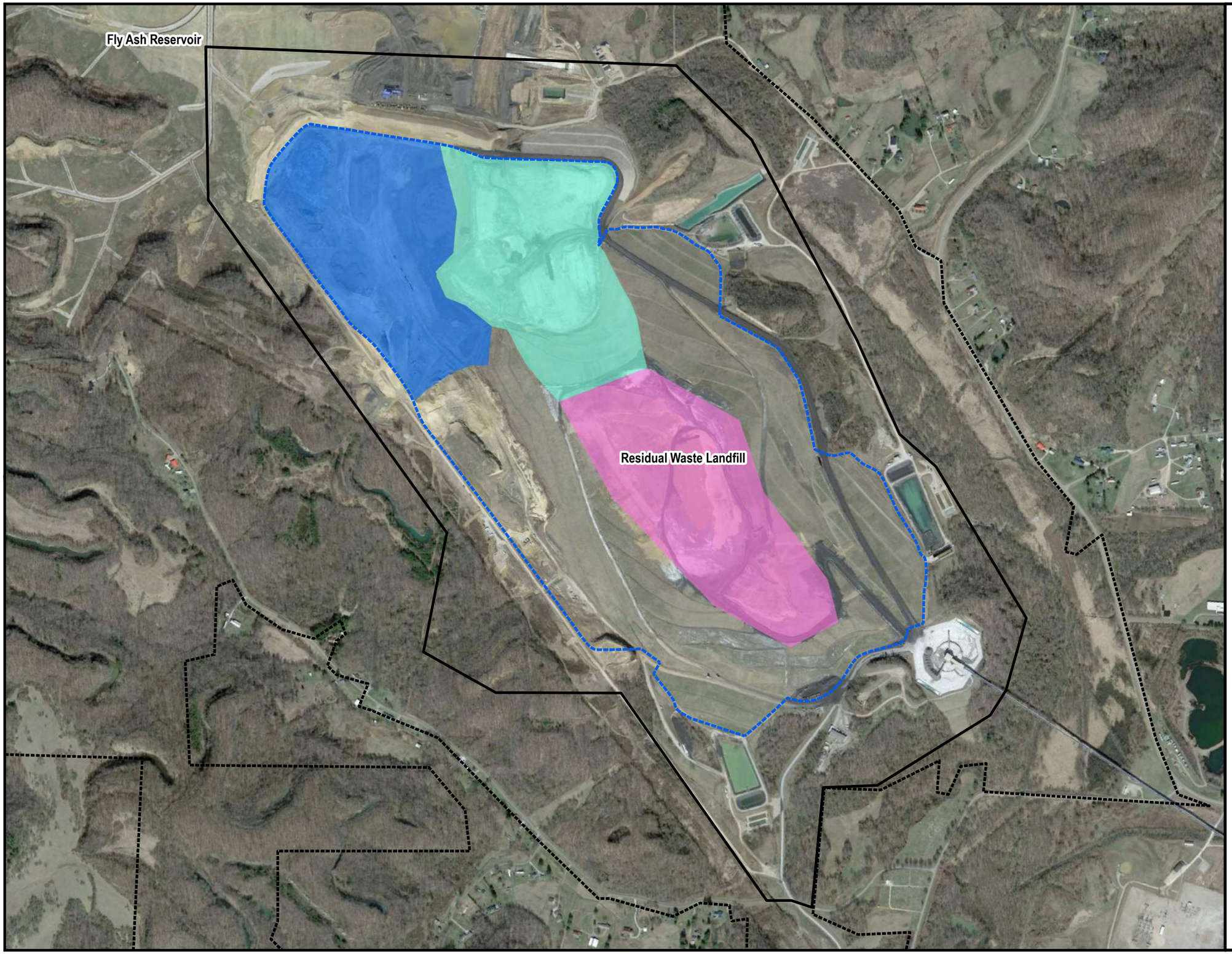

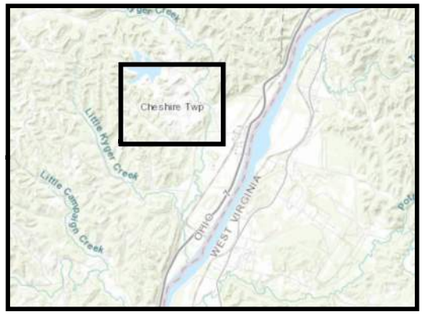

Legend

- Phase F2 and J Vertical Expansion
- Phase H Lateral Expansion
- Phase I Excavation
- Permitted Residual Waste Landfill Boundary
- Permitted Facility Boundary
- Gavin Power LLC Property Boundary

NOTES:

1. Locations are approximate
2. Aerial Imagery: Google Earth 2020
3. Phase H Lateral Expansion has been filled to the level of northern and eastern roadway.

N

0 150 300 600 900 1,200 1,500

Feet

Figure 2: Current Progress
Residual Waste Landfill
Gavin Power LLC
Cheshire, Ohio

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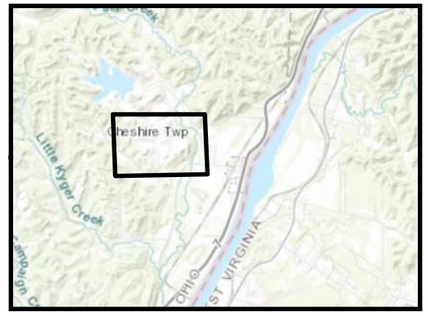

Legend

[#] Photograph Location

NOTES:
1. Locations are approximate
2. Aerial Imagery: Google Earth 2020

N

0 200 400 800 1,200
Feet

Figure 3: Visual Inspection Map
Residual Waste Landfill
Gavin Power LLC
Cheshire, Ohio

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APPENDIX A ANNUAL INSPECTION PHOTOGRAPHS

Residual Waste Landfill

(Photographs taken during 2020 CCR Inspection on 10/27/20)

Photograph #1 Main haul road constructed of bottom ash near midpoint of landfill (looking southeast)	
Photograph #2 Main haul road constructed of bottom ash heading up the north western side of the landfill (looking southeast)	
Photograph #3 Main haul road constructed of bottom ash near east side of interim summit elevation (looking south)	

Photograph #4 Southwestern gravel access roads (looking west)	
Photograph #5 Southwestern gravel access roads and vegetated soil covered slope heading to Phase I (looking northwest)	
Photograph #6 Southeast gravel access road and roadside channel with rock check dams. (Looking south)	

Photograph #7 Rock check dams on western slopes. (looking north)	
Photograph #8 View of southeast slopes. (looking north)	
Photograph #9 View of southern slope. (looking northeast)	

Photograph #10 View of interim summit of landfill with intermediate soil cover and vegetation growing. (looking north).	
Photograph #11 View of Phase H and intermediate soil covered and vegetated northern slope. (looking east)	
Photograph #12 Erosion gully into FGD material in recent soil covered section of directly seeded FGD. (looking west)	

Photograph #13 Erosion riling on limited area of slope and localized erosion of channel into FGD. Slope repair in progress. (looking west)	
Photograph #14 Southeast slope with satisfactory vegetation. (looking southeast)	
Photograph #15 Southeast slope with sporadic areas of sparse vegetation. (looking southeast)	

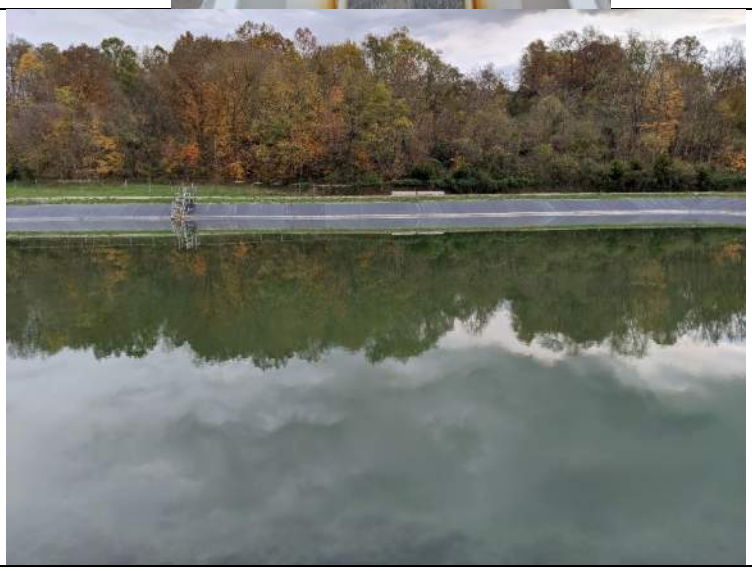
Photograph #16 Southern slope of FGD summit being regraded. (looking north)	
Photograph #17 Southern slope of FGD summit being regraded. (looking north)	
Photograph #18 Southern slope of FGD summit with placement of intermediate soil cover in progress. (looking northwest)	

Photograph #19 View of interim summit with soil cover on top of FGD. Soil stockpiles in the distance being established for covering regraded southern slope. (looking south)	
Photograph #20 Northeast slope of summit. (looking southwest)	
Photograph #21 Rock channel successfully protecting from erosion and capturing sediment. (looking north)	

Photograph #22	
Sparse vegetation on southern slope where direct seeding of FGD was attempted (looking southwest)	
Photograph #23	
Interim summit of landfill with soil cover with additional seed and mulch applied to correct areas of sparse vegetation. Chimney drains in the distance. (looking northwest)	

Pond No. 1

Photograph #24 View of inlet pipes for vertical flow wetland treatment adjacent to Pond No. 1 (looking northeast).	
Photograph #25 View of Pond No. 1 vertical flow wetland (looking southeast).	
Photograph #26 View of inlet structures for Pond No. 1 vertical flow wetland.	

Photograph #27 Outlet for vertical flow wetland at Pond No. 1 (looking southeast)	
Photograph #28 Flow meter looking north at Pond 1 (looking north)	
Photograph #29 View of slope and Pond No. 1 (looking east).	

Photograph #30 View of vegetated sediment patch in Pond No. 1 (looking east)	
Photograph #31 View of Pond No. 1 and southwest slope into pond (looking south).	
Photograph #32 View of where the dewatering bags for sludge collected from Pond 1 are stored when in use. No dredging is currently taking place (looking north).	

Photograph #33	
Small tear in crest run out portion of the liner of Pond 1 with vegetation growing through. (looking east)	

Pond No. 2

Photograph #34 Concrete Settling basin adjacent to Pond No. 2. (looking east)	
Photograph #35 View of FGD stack out pad runoff inlet into Pond No. 2 and bottom ash pad for temporary division of pond for liner maintenance. Left side used for treatment and right side being drained and cleaned with active liner repair. (looking northeast)	
Photograph #36 Clarifying pond for Pond No. 2. Recent liner maintenance repair visible in bottom of image (looking south).	

Photograph #37 Vertical flow wetlands for Pond No. 2. (looking south).	

Pond No. 3

Photograph #38 Pond 3 overview (looking southwest)	
Photograph #39 Sediment and vegetation in pond 3 (looking east)	
Photograph #40 Clarifying pond for Pond 3. (looking west)	

Photograph #41 Pond 5. Repaired anchor trench visible in center left of image. (looking west)	
Photograph #42 Overview of pond 5. (looking east)	

Photograph #43 Anchor trench on southern end has been repaired (looking east)	
Photograph #44 View of southern edge of Pond 5 near concrete access. Bulge of water above pond operating level seen in geomembrane. (looking west).	
Photograph #45 View of vertical wetlands for Ponds 3 and 5. (looking south).	

Photograph #46 View of FGD stack out pad operations (looking southeast).	
Photograph #47 View of FGD stack out pad operations (looking southwest).	
Photograph #48 View of inflow channel to Pond 5 with small liner tear visible in center of image. (looking west).	

APPENDIX B SUMMARY OF 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 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 Residual Waste Landfill, 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 257.84. 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: 1/8/2021

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ERM's Boston Office
One Beacon Street, 5th Floor
Boston, MA
02108

T: +1 617 646 7800
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