2018 Annual Inspection Report

Gavin Power, LLC

Residual Waste Landfill

Gavin Power Plant
Cheshire, Ohio

8 January 2019

Project No.: 0469558

The business of sustainability

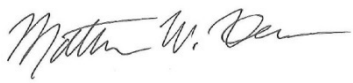
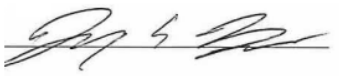
ERM

Signature Page

8 January 2019

2018 Annual Inspection Report

Residual Waste Landfill
at the Gavin Power Plant in Cheshire, Ohio

 Leonard Rafalko *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. *Project Engineer*
 Jeremy Young, P.E. *Project Engineer*		

ERM Consulting & Engineering
One Beacon Street, 5th Floor
Boston, MA 02108

CONTENTS

List of Tables

List of Figures

Acronyms and Abbreviations

CCR	Coal Combustion Residual
CFR	Code of Federal Regulations
FGD	Flue Gas Desulfurization
OEPA	Ohio Environmental Protection Agency
PTI	Permit to Install
PVC	Polyvinyl chloride
RWL	Residual Waste Landfill

1. INTRODUCTION

The Residual Waste Landfill (RWL) at the Gavin Power Plant in Cheshire, Ohio, is 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 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 was performed by Mr. James Hemme, P.E.; Dr. Matt Hurst, P.E., Ph.D.; and Mr. Jeremy Young, P.E. of ERM. Mr. Douglas E. Workman, Gavin Environmental Support , and Mr. Colin McKean, Landfill Process Owner at Gavin Power, were the facility contacts and supported 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 18 October 2018. Weather consisted of clear skies and light wind, and temperatures ranged from 40°F to 60°F. The inspection started with a safety briefing, preparation of a job hazard analysis by Mr. McKean, and a discussion of work currently occurring at the facility.

The inspection started at the southern end of the RWL and progressed to the northern end through the center of the RWL. The western and eastern sides of the RWL, respectively, were then inspected. No construction was occurring at the time of the site visit. CCR material was being actively hauled to both the vertical expansion area near the center of the RWL and to the recent expansion on the northeast end (which was certified by the Ohio Environmental Protection Agency [OEPA] in August 2018). Intermediate soil cover was also being applied to areas of the southeastern facing slopes.

1.2 Regulatory Cross-Reference Table

According to 40 CFR § 257.84(b)(1), annual inspections must be completed on CCR landfills by a qualified Professional Engineer. As noted above, the three inspectors of the RWL were all Professional Engineers. 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
§ 257.84(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, just 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 and is shown on Figure 1.

This 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 Flue Gas Desulfurization (FGD) by-product (consisting of scrubber cake, fly ash, and lime) and 2 percent other approved disposal materials (bottom ash, fly 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. Under this PTI, the capacity of the RWL will increase by 45.5 million cubic yards for a total of 94.5 million cubic yards. The RWL currently contains approximately 53.2 million cubic yards of CCR.

Construction under the PTI has been ongoing since 2016 and will proceed in phases until completion, which should occur over the next several years. The RWL has already completed construction of leachate/sedimentation Pond No. 5 and vertical flow wetlands associated with all three landfill pond outfalls. Since the last inspection, the RWL has been engaged in lateral expansion construction activities in the approximate areas shown on Figure 2.

A liner system was installed in 2017 consisting of (from top down): a geonet composite leachate collection/drainage layer or a 12-inch river gravel leachate collection layer; a 30-mil polyvinyl chloride (PVC) geomembrane; and a reinforced geosynthetic clay liner overlying a prepared subgrade. During the inspection, FGD was observed being placed in a general grid pattern across the area maintaining a typical separation of approximately 4 vertical feet between operating bulldozers and trucks and the exposed liner components.

2.2 Residual Waste Landfill Operations

Charah is the current contractor for landfill operations. Daily operation and site maintenance activities include hauling and distributing CCR, dredging accumulated solids from within settling ponds, 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, chemical suppressants, controlling the speed of construction vehicles, and cleaning paved roads. Roads are maintained on a daily basis through the use of a motor grader/roller device that was observed in operation by ERM. Bottom ash is applied to the roadways as needed to maintain a smooth and stable surface for access.

Weekly and monthly inspections are conducted by Gavin Power. Observations that identify areas to be addressed are reported to Charah, which also performs site maintenance. Site maintenance includes, but is not limited to, establishment of vegetation, repair of erosion features and minor grading, maintenance of haul roads, cleaning of drainage channels and ponds, and other incidental site maintenance.

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 shown on Figure 3. Qualitative terms used herein to describe the inspection are summarized in Appendix B.

Overall, the RWL, roads, and construction activities associated with the lateral expansion appeared to be in satisfactory condition 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 any other signs of possible instability, movement, or significant erosion along any of the slopes. ERM did not observe visual evidence indicating that storm water was impounding in the designated RWL area or along roadways. Since the 2017 annual inspection the landfill geometry has increased in height within the vertical expansion (Phase F2 and Phase J) area and protective cover and waste placement within lateral expansion Phase H has continued.

3.1 Haul and Access Roads

The haul roads use bottom ash as a base course (as shown in Photographs 14, 17, and 20). The base course appears to compact well and holds up to repeated heavy equipment hauling. 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 visual evidence of pooling water on the road surface. Storm water runoff from adjacent slopes is caught by drainage channels running parallel to the roads, and directed to stabilized outlets at the surrounding site treatment ponds. Sporadic evidence of minor erosion in the channel bottoms was observed, but overall roadside channels appeared to be well maintained.

There were several sections of more frequently used permanent roads that have a gravel base course (as shown in Photographs 18, 19, 33, and 36). These roads also appeared to be stable with no visual evidence of distress. More frequently used roads had robust drainage channels adjacent to slopes that were positively graded and had rock check dams (Photograph 1). The drainage channels on the eastern slopes appeared well-maintained with no visual evidence of obstructions. The drainage channels on the southwestern slopes showed signs of erosion and rutting into the FGD material in areas with temporary cover. ERM recommends that this area be repaired and monitored. If issues are persisting, increasing the number of rock check dams and additional riprap armoring may fix the issue. ERM also recommends maintenance of the sediment traps below areas where erosion has been noted. On the eastern haul road leading to the new landfill cell, leachate was identified percolating to the land surface and flowing to Pond 3 via the drainage channel, where runoff and leachate are treated, as described in Section 3.3 below.

3.2 Slopes and Slope Cover

Approximately 70 percent of the 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 will be impacted as portions of the lateral expansion are constructed and filled with CCR. There were no appearances or observations of actual or potential structural weakness within the RWL (e.g. slips, soil tension cracks, sinkholes, etc.) noted during the annual inspection. No indications of residual waste movement or other potential changes that might alter the geometry of finished slopes or overall stability of the RWL was 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. The areas that had received final cover had well-established vegetation, as shown on Photographs 1, 5, 15, 16, 18, 19, and 20. There were infrequent instances where vegetated erosion gullies were observed (Photograph 11 and 13); however, there was no visual evidence that erosion was a significant concern or that any observed vegetated gullies were expanding.

The facility has also performed direct seeding of FGD material; however, the establishment of vegetation in these areas has been only partially successful, but does aid as a temporary measure to control dust. In areas where establishment of vegetation via direct seeding of the FGD has been unsuccessful, the facility was observed to be in the process of applying a layer of soil to aid in the establishment of vegetation. The application of this soil layer can be seen in Photograph 4. Direct-seeded areas of FGD with poor vegetative growth can be seen in Photographs 5 and 12. Despite the lack of vegetation in some direct-seeded FGD areas, erosion rills and gullies were observed to be minimal, which is evidence that Gavin Power has successfully controlled storm water flow on graded slopes within the RWL. In storm water channels, Gavin Power has successfully utilized periodic check dams and outlet protection to reduce storm water velocity and minimize the potential for erosion.

3.3 Sedimentation/Leachate Ponds

Four pond units, labeled as Pond No. 1, 2, 3, and 5, currently operate to manage sediments, storm water, 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 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. The effluent from the various vertical flow wetland systems is then discharged off site in accordance with the Plant's National Pollutant Discharge Elimination System permit.

The sedimentation/treatment portion of Ponds 1 and 3 were observed to have varying amounts of solids within their limits, as shown in Photographs 32 and 39. The clarifying portion of Pond 3 was also observed to have a minor amount of sedimentation, as shown in Photograph 41, which was being cleaned out at the time of the inspection. These ponds are routinely cleaned of accumulated solids, typically through the use of extended-reach excavators or a floating dredge.

The dredged material from the ponds cleaning is typically pumped into dewatering bags located within a geomembrane-lined 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 filled it is opened, the contents are removed, and the collected material is disposed in the RWL.

Pond 1 appeared to be functioning properly during ERM's visit. An active dewatering bag observed during the inspection is shown on Photograph 34. The bag appeared to be functioning satisfactorily at the time of inspection and was discharging relatively clear effluent. A buildup of sediments and vegetation was observed at the inflow to Pond 1. For maintenance purposes these materials should be removed and properly disposed. A small tear was observed in the liner of the clarifying pond on the southern corner. ERM recommends that this tear be repaired as part of routine maintenance.

Pond 2 also appeared to be functioning satisfactorily. To assist with the removal of FGD solids coming from the stack out pad and to minimize dredging, Gavin Power operates a concrete settling basin at Pond 2. This basin is routinely cleaned with an extended-reach excavator. A dewatering bag was also observed on an elevated layer of bottom ash within this pond to manage materials collected with a floating dredge. Within the sedimentation/treatment portion of Pond 2, rock from maintenance and grading operations on

the adjacent western roadway was identified on the geomembrane liner system. These rocks should be removed during routine maintenance operations.

Ponds 3 and 5 were observed to be functioning satisfactorily. It is recommended that vegetation growth that occurs within the limits of Pond 3 be removed. No visible tears in the liners were noted during the inspection. The channel that comes off the embankment into Pond 3 has part a fence laying in it, which is causing sediment build up behind it. The fence and sediment should be removed during routine maintenance operations.

Overall, the clarifying portion of the pond systems, and the associated vertical flow wetland systems, showed evidence of tearing in the outermost protective liner. The liner was being cleaned of debris and gravel from recent heavy rains. Maintenance workers there at the time noted that the outermost liner was for UV protection and not meant to be the impermeable liner as shown on Photograph 41. The impermeable layer underlies the outermost layer. Various outlet structures for the ponds and vertical flow wetlands were also observed to be largely clear of sedimentation and debris as shown on Photographs 38 and 39.

3.4 Operation

As mentioned, daily landfill operation is conducted and managed by Charah and overseen by Gavin Power. During the time of the inspection, operations were occurring within the limits of the vertical expansion near the center of the facility. As required by the PTI issued by OEPA, Gavin Power maintains daily logs of operations and performs daily inspections of the RWL.

Photographs 6 through 9 show operating conditions at the FGD stack-out pad during ERM's visit. It appeared during the inspection that FGD material at the stack-out pad was being satisfactorily handled and contained on the pad. It was observed that large haul trucks were filled by an end loader and then directed to the designated placement location. During the inspection, the FGD material was being placed at the current lateral expansion while pond cleanings and limited truckloads of FGD material were being placed within the vertical expansion area.

New activities this year included construction and filling activities at a new cell of the RWL designated as Phase H. The vertical phase from the prior year was also continuing. In the vicinity of the vertical expansion, FGD material had been placed in a lift and pond cleanings were being placed within this excavated area. Photographs 10, 23, and 24 show the placement of the CCR material at this location. During ERM's inspection, CCR material placement was being conducted in a satisfactory manner. A series of chimney drains were observed within the vertical expansion area to assist in draining excess surface water and to collect potential future leachate as the RWL continues expanding upward. During the inspection, sufficient drainage stone was not observed around the top of the current chimney drains. The absence of the drainage stone could potentially cause the chimney drains to not function properly. ERM recommends the addition of additional drainage stone around the top of the current chimney drains. CCR material containing a higher moisture content (e.g., pond cleanings and lime) was being placed within stable excavated areas of FGD away from outer slopes for mixing with dry materials. The contractor also maintained a stockpile of construction materials including pipe, gravel, and geotextile separation fabric within a storage area on an inactive area of the RWL to use for incremental construction activity.

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 should include 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:

- 2017 Landfill Annual Inspection Report, dated 8 January 2018;
- Seven-day qualified person inspection checklists for the RWL;
- Gavin Plant Residual Waste Landfill Closure Plan, dated October 2016;
- 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 2017 Annual Inspection Items

ERM reviewed photographs and repair items from the 2017 Annual Inspection Report, which included the following: placing the final cap where final grades have been reached as required by OEPA; mulching unvegetated areas to attain established vegetation; repairing erosion areas noted at the permanent capped areas; seeding and mulching; and continuing to remove sediments from all ponds on an as-needed basis. Based on the 2018 annual inspection and a review of weekly inspection reports, the above-mentioned repair items from the 2017 annual inspection were completed. The Plant has consistently addressed items requiring attention that were identified in the weekly inspection reports as quickly as possible.

5.2 Recommendations for 2019

ERM provides the following recommendations for the RWL based on the 2018 inspection:

1. Deficiencies identified during weekly inspections should be documented and addressed in a timely fashion. It is recommended that the Plant continue this good 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 spots along completed slopes to aid in the revegetation process. Add 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 demolished material (i.e., clean concrete) as a temporary erosion and sediment control within the facility's storm water management system is encouraged. Supplement these materials with manufactured aggregate and materials as appropriate to enhance performance.
6. Maintain storm water channels and sediment traps on the southwestern slopes.
7. Fill gullies and add more rock check dams and riprap armoring as needed.
8. Remove excessive vegetation growth from inside Ponds 1 and 3 and continue maintenance on other ponds. Clean channel inlets on both Ponds 1 and 3 to removed sediment buildup.
9. The small tear of the clarifying pond liner at Pond 1 should be repaired as part of routine maintenance operations.
10. Gravel material observed on the west side of Pond 2 should be removed and Pond 2 should be repaired as part of routine maintenance operations.
11. Add drainage stone around the top of current chimney drains.

5.3 Conclusions

The annual inspection and document review indicated that the RWL is in satisfactory operating condition and stable. ERM observed that the lateral expansion is being completed in a satisfactory manner and appropriate measures for the protection of the liner system are being implemented during this process. 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 or operation of the RWL. The recommendations made above are not critical to the current stability or the safe operation of the RWL.

FIGURES

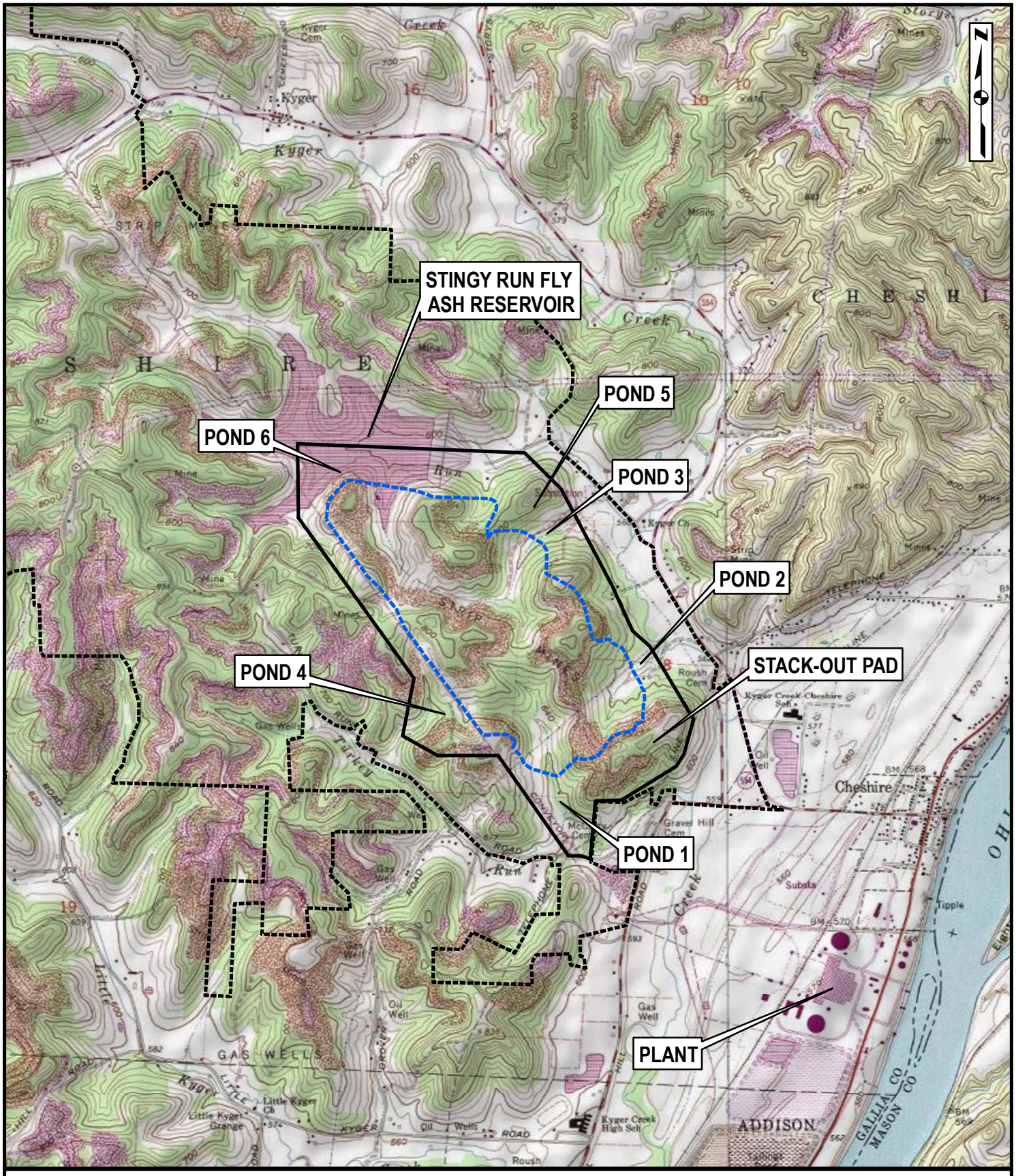
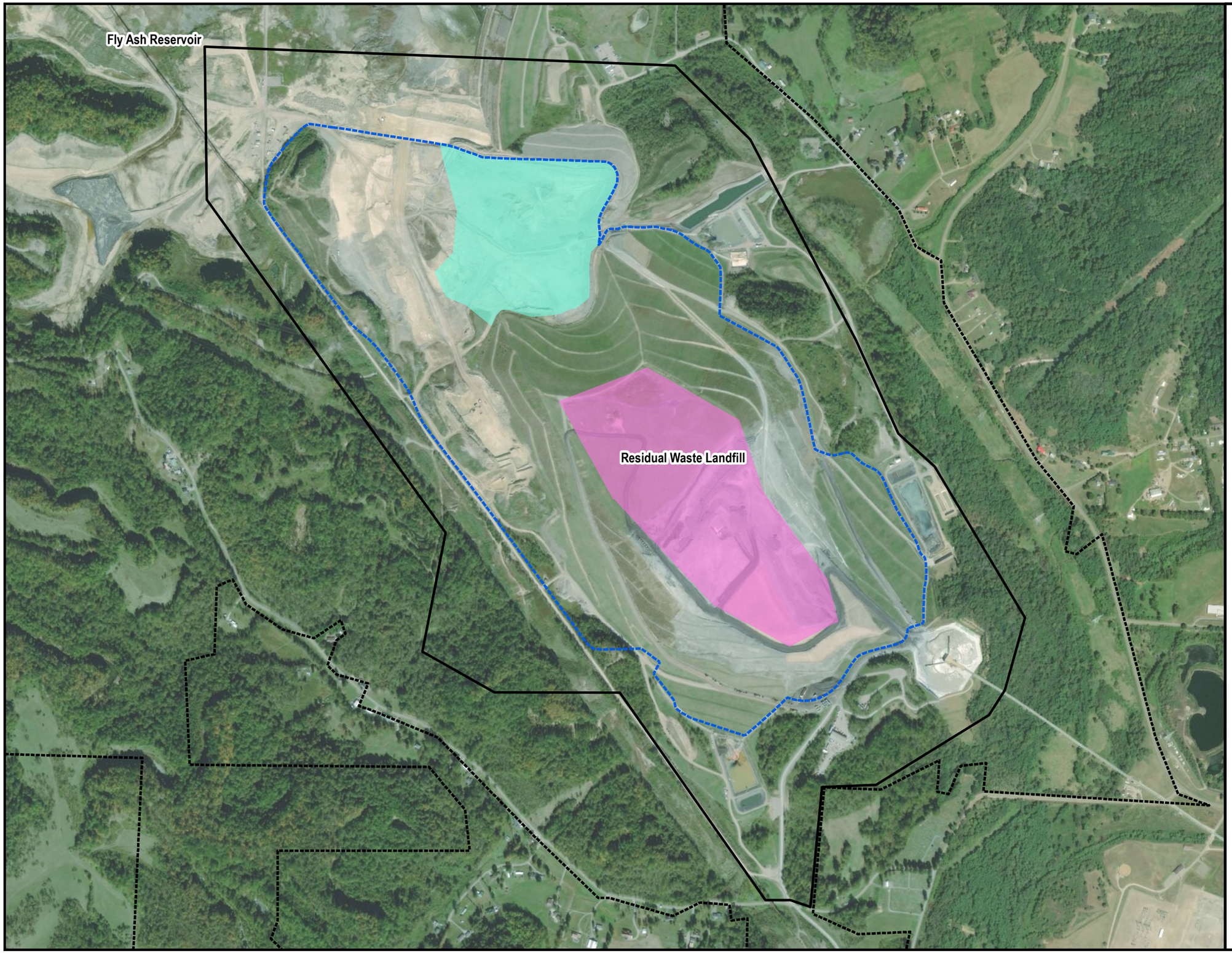


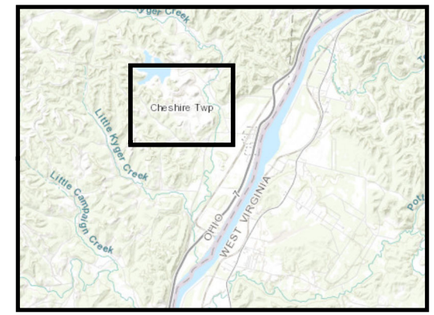
Figure 1: Site Location Map
Gavin Power LLC
Cheshire, Ohio

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

ERM

Q:\Team\DMM\Clients_F_K\Gavin\GavinPowerPlant\MXD\CCR_AnnualInspectionReport_Landfill\Figure1_SiteLocation.mxd - Dana.Heusinkveld - 12/5/2017





Legend

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

NOTES:

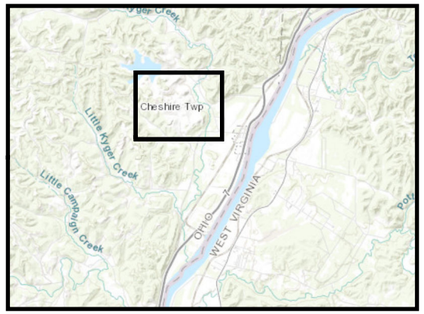
1. Locations are approximate
2. Aerial Imagery: ESRI World Imagery
   Reproduced under license in ArcGIS 10.5

N

0 150 300 600 900 1,200 1,500
Feet

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

ERM



Legend

[#] Photograph Location

NOTES:

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

N

0 150 300 600 900 1,200

Feet

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

ERM

Q:\Team\DMW\Clients_F_K\Gavin\GavinPowerPlant\MXD\AnnualEngineeringInspectionReport_2018\Figure3_VisualInspectionMap_ResidualWasteLandfill_20181221.mxd - Dana.Heuskweld - 12/21/2018

APPENDIX A ANNUAL INSPECTION PHOTOGRAPHS

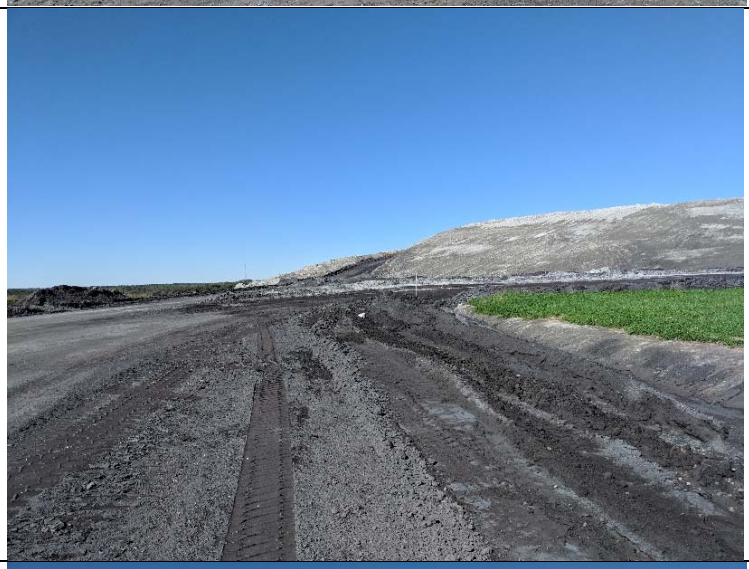
Residual Waste Landfill

Photograph #1 Sediment buildup on south-western slope and rock check dam (looking north)	
Photograph #2 Full sediment trap on south-western slope (looking east)	
Photograph #3 Overview of new landfill cell (looking north)	

Photograph #4 Soil stockpile near current summit (looking east)	
Photograph #5 Sparse vegetation on southwest slope (looking northeast)	
Photograph #6 View of FGD stack out pad operations and slope (looking north).	

Photograph #7 View of FGD stack out pad operations (looking east).	
Photograph #8 View of FGD stack out pad operations (looking south).	
Photograph #9 View of FGD stack out pad operations (looking north).	

Photograph #10 View of current summit of landfill (looking north).	
Photograph #11 Erosion gully on main haul road to summit (looking west)	
Photograph #12 Sparse vegetation on southern slope (looking north)	

Photograph #13 Erosion gully into FGD material (looking west)	
Photograph #14 Main haul road near summit (looking north)	
Photograph #15 Main haul road near summit (looking northeast)	

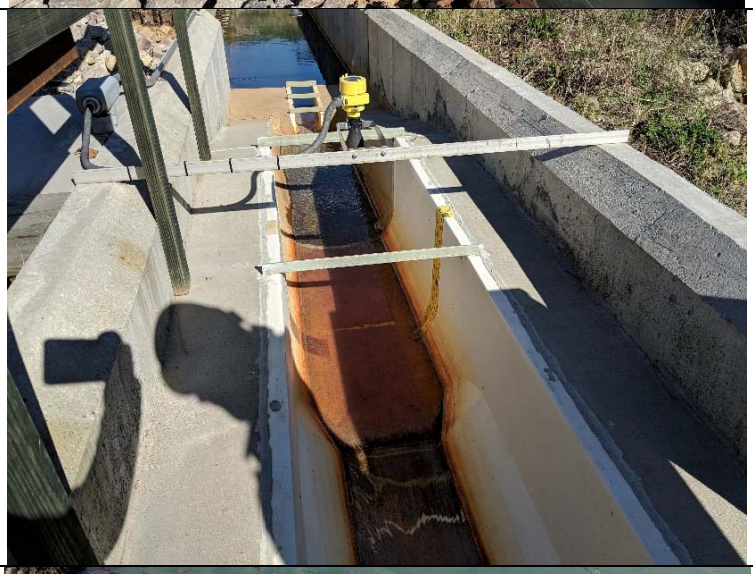
Photograph #16 Grassy area near summit (looking southeast)	
Photograph #17 Main haul road near summit (looking north)	
Photograph #18 Southwestern access roads (looking west)	

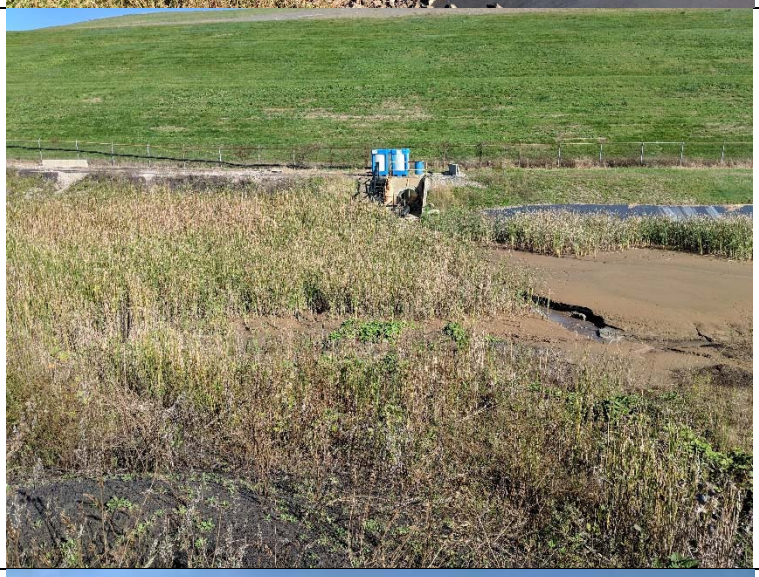
Photograph #19 Southwestern access road (looking south)	
Photograph #20 Main haul road near summit (looking south)	
Photograph #21 Sparse vegetation on southern slope (looking north)	

Photograph #22 Sparse vegetation on southern slope (looking northeast)	
Photograph #23 Summit of landfill (looking south)	
Photograph #24 Summit of landfill and chimney drains (looking west)	

Pond No. 1

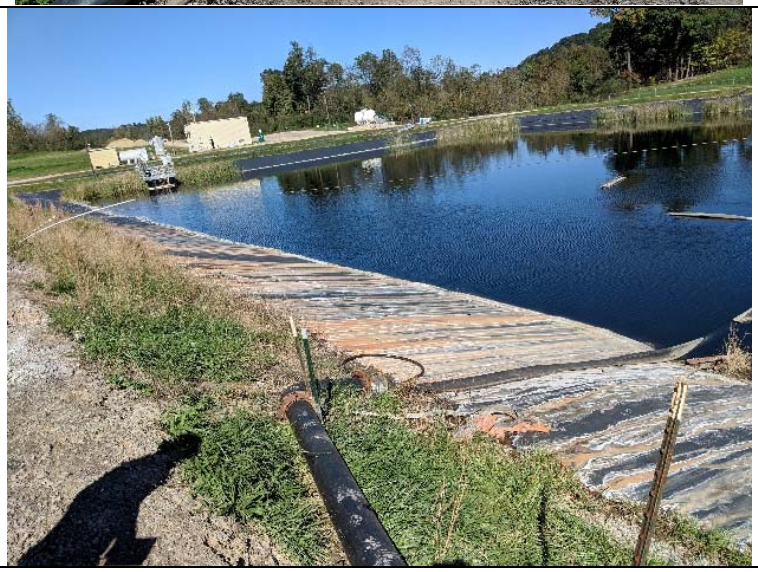
Photograph #25 View of inlet pipes for vertical flow wetland treatment adjacent to Pond No. 1 (looking south).	
Photograph #26 View of Pond No. 1 vertical flow wetland (looking south).	
Photograph #27 View of inlet structures for Pond No. 1 vertical flow wetland.	

Photograph #28 Outlet for vertical flow wetland at Pond No. 1 (looking west)	
Photograph #29 Flow meter looking north at Pond 1	
Photograph #30 Wetland material out of water (looking west) At Pond 1	

Photograph #31 View of slope and Pond No. 1 (looking north).	
Photograph #32 View of vegetated sediment patch in Pond No. 1 (looking north)	
Photograph #33 View of Pond No. 1 and southwest slope into pond (looking south).	

Photograph #34	
View of dewatering bags for sludge collected from Pond 1 (looking north).	

Pond No. 2

Photograph #35 Settling basin adjacent to Pond No. 2. (looking east)	
Photograph #36 View of leachate inlet for Pond No. 2. (looking south)	
Photograph #37 View of northern banks of Pond No. 2 (looking northeast).	

Pond No. 3

Photograph #38 Pond 3 overview (looking south)	
Photograph #39 Sediment and vegetation in pond 3 (looking south)	
Photograph #40 Pond 5 (looking north)	

Photograph #41 Clarifying pond next to pond 3 (looking south)	
Photograph #42 Clarifying pond surface wear (looking north)	
Photograph #43 Clarifying pond surface wear (looking east)	

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.

Good: A condition or activity that is generally better or slightly better than what would be minimally expected or anticipated from a stability, maintenance, or design viewpoint.

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: _____1/8/2019_____

ERM has over 160 offices across the following countries and territories worldwide

Argentina
Australia
Belgium
Brazil
Canada
Chile
China
Colombia
France
Germany
Hong Kong
India
Indonesia
Ireland
Italy
Japan
Kazakhstan
Kenya
Malaysia
Mexico
Mozambique
Myanmar
The Netherlands
New Zealand
Norway
Panama
Peru
Poland
Portugal
Puerto Rico
Romania
Russia
Singapore
South Africa
South Korea
Spain
Sweden
Switzerland
Taiwan
Thailand
UAE
UK
US
Vietnam

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

T: +1 617 646 7800
F: +1 617 267 6447

www.erm.com

0134396.0661055 4838-8970-8676v1

The business of sustainability

ERM