



Mitchell Landfill
2024 Annual Landfill Inspection
Report

Mitchell Plant, Moundsville, West Virginia

Submitted to:

American Electric Power Service Corporation
1 Riverside Plaza
Columbus, OH 43215

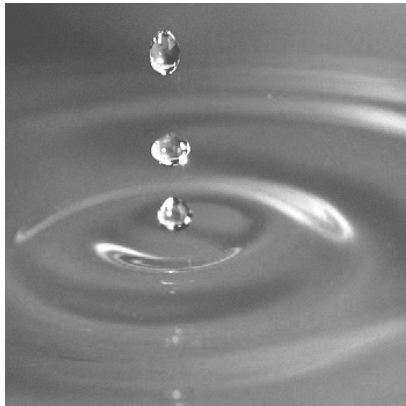
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October 28, 2024

Project 2305686

AEP Document ID: GEVR-24-028



Pedro Amaya, PE
Senior Consultant

Jeff Piaskowski, PE
Senior Engineer

2024 Annual Inspection Report



**CCR Landfill
Mitchell Power Plant
AEP Document ID: GEVR-24-028**

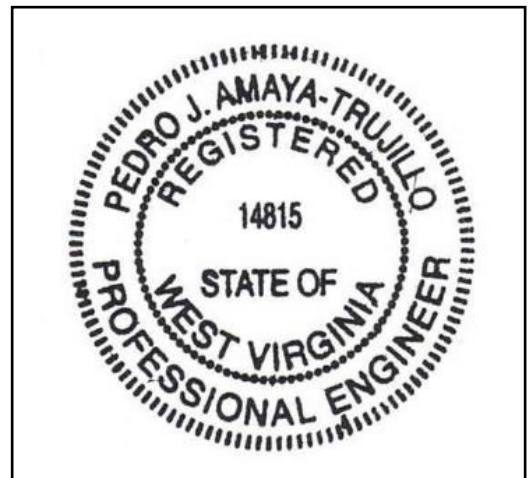
A handwritten signature in black ink that reads "Pedro J. Amaya".

Signature

Pedro Amaya, PE
Senior Consultant
GEI Consultants Inc.

November 5, 2024

Date



SEAL

I certify, to the best of my knowledge, that the information provided in this report satisfies the requirements of 40 CFR 257.84(b).

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JRP

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1. Introduction

GEI Consultants, Inc. was retained by AEP to implement the 2024 Inspection and Maintenance Program at AEP facilities. As part of the program, GEI's Pedro Amaya, P.E. performed the 2024 inspection of the Landfill at the Mitchell Power Generating Plant in general accordance with the requirements of 40 CFR 257.84. Mr. Dennis Henderson was the AEP facility contact. This report was prepared by Pedro Amaya, PE and Jeff Piaskowski, PE of GEI and serves as a summary of the inspection and an assessment of the general conditions of the Landfill at the Mitchell Power Generating Plant.

The inspection was performed on September 4, 2024, in general accordance with the Mining Safety and Health Administration (MSHA) Dam Inspection Guidelines. Weather conditions were partly cloudy with mild temperatures between 70- and 80-degrees Fahrenheit. Approximately 1.75-inches of precipitation was recorded regionally in the 7 days prior to the inspection.

The Mitchell Power Generating Plant is located near Moundsville, West Virginia as shown on Figure 1 – Site Location Map. The facility arrangement is provided on Figure 2 – Facility Plan. The Landfill and its accessory structures are shown on Figure 3 – Site Plan.

2. Description of Landfill

The Mitchell Landfill is a lined valley fill landfill with a leachate collection system and three separate phases (Phase 1, Phase 2, and Phase 3). The landfill leachate system is designed flow to the south end (downhill) of the landfill area. Leachate is then pumped uphill to a detached leachate collection pond on top of an adjacent ridgeline.

Phase 3 is actively receiving CCR materials while Phases 1 and 2 are temporarily covered. Chimney drains constructed out of bottom ash material inside the Phase 3 area. These bottom ash chimney drains are connected to the leachate collection system to handle contact stormwater on the landfill active area. Temporary clay berms exist immediately to the south of Phases 1, 2, and 3.

Leachate collection pipes for Phase 1, Phase 2, and Phase 3 flow by gravity to the south and discharge into a concrete sump. Leachate water is then pumped to the leachate collection pond for recirculation back to the plant.

Non-contact stormwater from the north end of the site is directed to the west sedimentation pond. Non-contact storm water from the east end of the site is directed to the east sedimentation pond. Non-contact storm water from the south end of the site is directed to the south sedimentation pond.

3. Review of Available Information (257.84(b)(1)(i))

A review of available information regarding the status and condition of the landfill which include files available in the operating record, such as design and construction information, previous 30-day inspection reports, and previous annual inspections have been conducted. Based on the review of the data there were no signs of actual or potential structural weakness or adverse conditions.

4. Inspection

4.1 Changes in Geometry Since Last Inspection (257.84(b)(2)(i))

There were no changes in the geometry of the landfill since the 2023 annual inspection.

4.2 Volume

The total volume of CCR material disposed at the landfill through August 2024 is summarized in the table below. This is based on information from previous annual inspection reports and information received from Mitchell Plant personnel.

CCR Description	Pre-2020	2020	2021	2022	2023	2024*	Total
Fly Ash	1,640,377	150,949	257,203	175,990	193,730	151,347	2,569,596
Bottom Ash	86,926	14,295	27,599	250,006	91,462	64,437	534,725
Soil	20,212	5,744	7,391	7,100	14,069	4,314	58,830
CPS Cookies	29,047	7007	71,356	9,908	5,439	3,832	126,589
Gypsum	34,241	1,400	652	35,881	1,314	118	73,606
Combined	1,810,803	179,395	364,201	478,885	306,014	224,048	3,363,346

*= From January 2023 through August 31, 2024.

**= Bottom ash used for construction and not considered part of disposal quantities.

4.3 Definitions of Visual Observations and Deficiencies

This summary of the visual observations uses terms to describe the general appearance or condition of an observed item, activity, or structure. The meaning of these terms is as follows:

Good: A condition or activity that is generally better or slightly better than what is minimally expected or anticipated from a design or maintenance point of view.

Fair/Satisfactory: A condition or activity that generally meets what is minimally expected or anticipated from a design or maintenance point of view.

Poor: A condition or activity that is generally below what is minimally expected or anticipated from a design or maintenance point of view.

- Minor:** A reference to an observed item (e.g. erosion, seepage, vegetation, cracks, concrete surface etc.) where the current maintenance condition is below what is normal or desired, but which is not currently causing concern from a structure safety or stability point of view.
- Significant:** A reference to an observed item (e.g. erosion, seepage, vegetation, cracks, concrete surface etc.) where the current maintenance program has neglected to improve the condition. Usually, conditions that have been identified in previous inspections, but have not been corrected.
- Excessive:** A reference to an observed item (e.g. erosion, seepage, vegetation, cracks, concrete surface etc.) where the current maintenance condition is below or worse than what is normal or desired, and which may have affected the ability of the observer to properly evaluate the structure or area being observed or which may be a concern from a structure safety or stability point of view.

This document also uses the definition of a “deficiency” as referenced in the CCR rule section §257.84(b)(5) Inspection Requirements for CCR Landfills. This definition has been assembled using the CCR rule preamble as well as guidance from MSHA, “Qualifications for Impoundment Inspection” CI-31, 2004. These guidance documents further elaborate on the definition of deficiency. Items not defined by deficiency are considered maintenance or items to be monitored.

A “deficiency” is some evidence that the CCR Unit has developed a problem that could impact its structural integrity. There are four general categories of deficiencies. These four categories are described below:

1. Uncontrolled Seepage

Uncontrolled seepage is an uncontrolled release from the unit.

2. Displacement of the Embankment

Displacement of the embankment is large scale movement of part of the pond embankment. Common signs of displacement are cracks, scarps, bulges, depressions, sinkholes, and slides.

3. Blockage of Control Features

Blockage of Control Features is the restriction of flow at spillways, decant or pipe spillways, or drains.

4. Erosion

Erosion is the gradual movement of surface material by water, wind, or ice. Erosion is considered a deficiency when it is more than a minor routine maintenance item.

4.4 Visual Inspection (257.84(b)(1)(ii))

A visual inspection of the landfill was conducted to identify any signs of distress or malfunction of the landfill and appurtenant structures. Specific items inspected included structural elements of the landfill perimeter berms, landfilled CCR material, drainage features, storm water ponds, leachate ponds, open cells, and accessories such as chimney drains and underdrains.

Overall, the facility is in good condition. The landfill is functioning as intended with no signs of structural weakness or conditions which are disrupting to the safe operation of the landfill.

Inspection photos are included in Attachment A - Photolog.

1. The temporary cover on Phase 1 and Phase 2 is satisfactory. The vegetation is maintained to 12-inches or less and there was no ponding water as shown in Photograph 1 and Photograph 2. Some minor erosion was observed on the adjacent sideslopes and should be addressed before it becomes significant as shown in Photograph 5 and Photograph 6.
2. The Phase 3 active area is in satisfactory condition. The material is being placed in accordance with fill progression plan and chimney drains were functioning as they were designed as shown in Photographs 3 and 4. Minor erosion was observed in the Phase 3 western and eastern stormwater ditches and should be addressed before it becomes significant as shown in Photograph 12 and Photograph 13.
3. The upstream and downstream slopes of the South Pond were in satisfactory condition. The vegetation on the downstream slope was healthy and no erosion was observed as shown in Photograph 14. Some vegetation was observed in excess of 12-inches and should be maintained more frequently as shown in Photograph No. 15. The upstream slope was covered with riprap and the vegetation was generally maintained to less than 12-inches as shown in Photograph 9. The South Pond outlet structure was in good condition and the trash rack was free of obstructions as shown in Photograph 16. Vegetation in excess of 12-inches was observed into and adjacent to the south pond stormwater inlet channel, this vegetation should be maintained to 12-inches or less before it becomes larger and more difficult to maintain.
4. The leachate collection pond was in good condition and operating with at least 2-feet of freeboard. No rips or tears were observed in the exposed geomembrane as shown in photographs 7 and 8.

5. Summary of Findings

5.1 General Observations

The following general observations were identified during the visual inspection:

1. In general, the landfill is functioning as its design intended. The fill progression plan is being followed that maintains a sloped CCR surface that drains towards the bottom ash chimney drains that conveys the contact water to the leachate collection system.
2. The plant is performing regular maintenance and inspections. Vegetation is well established on the landfill temporary cover and downstream slopes of the ponds.
3. Site drainage is generally functioning per the design with no blockages observed on any drainage structure or conveyance. A couple isolated areas of minor erosion were observed and should be addressed. These areas seem to be gathering concentrated flows and the drainage areas should be re-evaluated and appropriately collected in a ditch lined appropriately for the anticipated design flows.

5.2 Maintenance Considerations

The maintenance items are provided for consideration:

1. Continue routine mowing of the temporary cover.
2. Address issues like minor animal burrows and minor erosion rills before they become significant.
3. Continue to check site drainage features such as culverts, ditches, and outfall structures for debris/blockages to allow the site stormwater to flow as it was designed.

5.3 Items to Be Addressed

The following items were identified during the visual inspection as items to be addressed, see Figure 4 – Items to be addressed for reference locations:

1. Item No. 5 and 6 – Address the minor erosion before it becomes significant. Consider re-evaluating this area and developing a drainage plan with ditches designed for the anticipated flow conditions.
2. Item No. 12 and 13 – Address the minor erosion before it becomes significant. Consider re-evaluating this area and developing a drainage plan with ditches designed for the anticipated flow conditions.

3. Item No. 15 – Address/maintain the woody vegetation in excess of 12-inches on the downstream slope of the South Pond.
4. Item No. 17 – Address/maintain the woody vegetation in excess of 12-inches on the upstream channel of the South Pond.

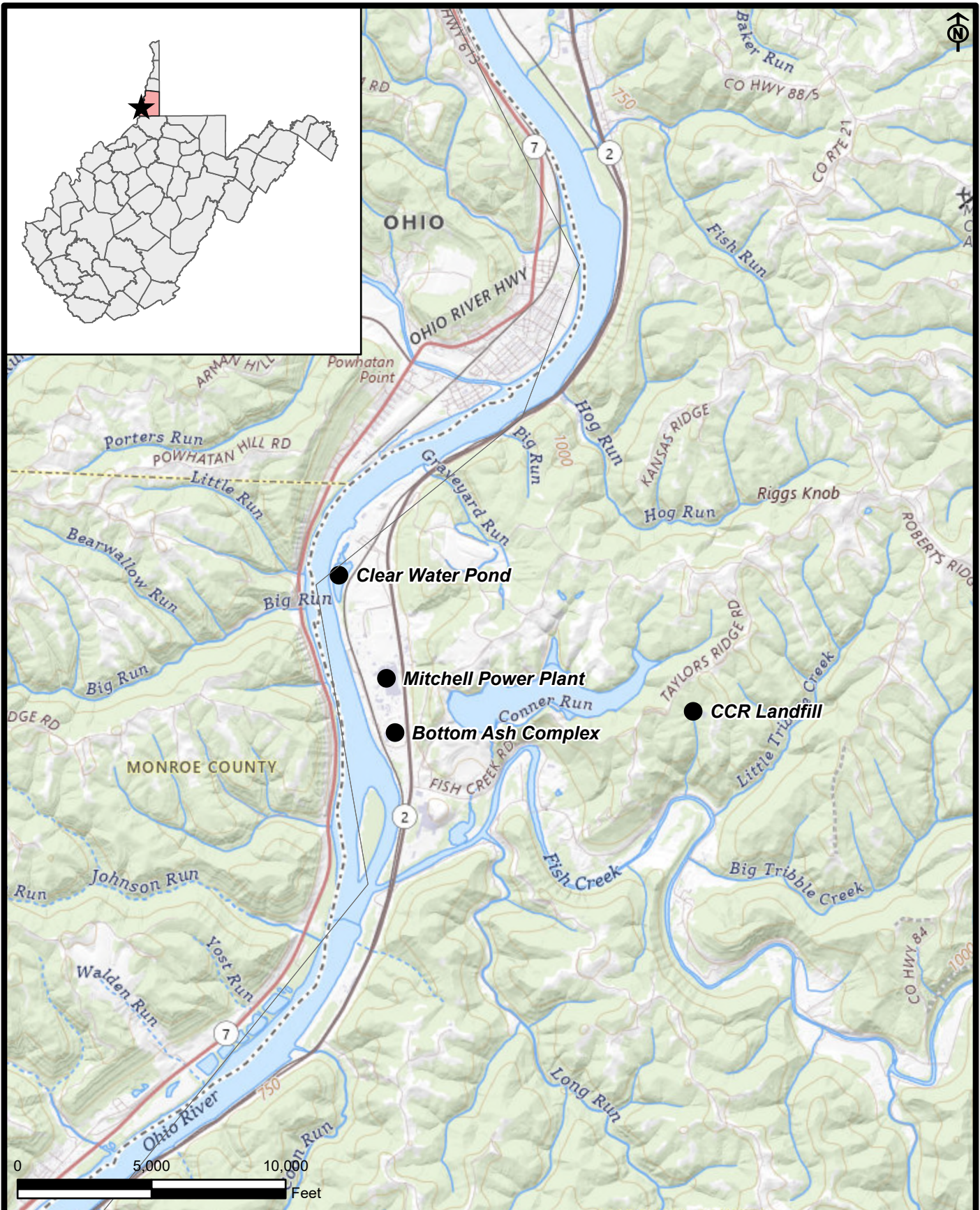
6. Deficiencies (257.84(b)(2)(iii))

There were no signs of structural weakness or disruptive conditions that were observed at the time of the inspection that would require additional investigation or remedial action. There were no deficiencies noted during this inspection or during any of the periodic inspections. A deficiency is defined as either:

- uncontrolled seepage
- displacement of the embankment
- blockage of control features
- erosion, more than minor maintenance

If any of these conditions occur or if you have any questions with regard to this report, please contact Mohammad Ajlouni at 614-716-2939 maajlouni@aep.com or Bryan Brunton at 614-716-3090 bwbrunton@aep.com.

Figure 1 – Site Location Map



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 Columbus, OH 43215



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SITE LOCATION DIAGRAM

August 2024

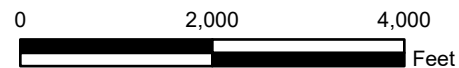
Fig. 1

Figure 2 – Facility Plan



NOTES:

- 1. Aerial image obtained from USDA NAIP. Image captured spring of 2021.
- 2. Site conditions may change over time, accuracy is not guaranteed.



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FACILITY PLAN

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August 2024

Fig. 2

Figure 3 – Site Plan

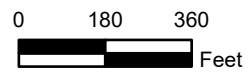


LEGEND:

 General Observation

NOTES:

1. Aerial image obtained from USDA NAIP. Image captured spring of 2021.
2. Points shown represent site conditions during time of inspection. Conditions may change overtime, accuracy is not guaranteed. Map should not be used for measurement.



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SITE PLAN

September 2024

Fig. 3

Figure 4 – Items to be Addressed

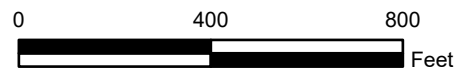


LEGEND:

● Repair

NOTES:

1. Aerial image obtained from USDA NAIP. Image captured spring of 2021.
2. Points shown represent site conditions during time of inspection. Conditions may change overtime, accuracy is not guaranteed. Map should not be used for measurement.



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Project 2305686

ITEMS TO BE ADDRESSED

September 2024

Fig. 4



Appendix A - Photolog

Photographic Log



Project: Mitchell Power Plant, Landfill Inspection
Client: American Electric Power

GEI Project: 2305686

PHOTOGRAPH NO: 1	DATE: September 4, 2024 10:19 AM	LATITUDE: 39.82897222	LONGITUDE: -80.77307299
DIRECTION: 183°	SITE LOCATION: MARSHALL COUNTY, WEST VIRGINIA		
DESCRIPTION: Mitchell Landfill. Interim Cover. General Photo, Typical Conditions.			
PHOTO BY: GEI CONSULTANTS, INC.			
PHOTOGRAPH NO: 2	DATE: September 4, 2024 10:21 AM	LATITUDE: 39.82896264	LONGITUDE: -80.77311781
DIRECTION: 105°	SITE LOCATION: MARSHALL COUNTY, WEST VIRGINIA		
DESCRIPTION: Mitchell Landfill. Interim Cover. Note Bottom Ash Stockpile to be used with Chimney Drains			
PHOTO BY: GEI CONSULTANTS, INC.			

Photographic Log



Project: Mitchell Power Plant, Landfill Inspection
Client: American Electric Power

GEI Project: 2305686

PHOTOGRAPH NO: 3	DATE: September 4, 2024 10:23 AM	LATITUDE: 39.82896239	LONGITUDE: -80.7731173
DIRECTION: 152°		SITE LOCATION: MARSHALL COUNTY, WEST VIRGINIA	
DESCRIPTION: Mitchell Landfill active area. General Photo, Typical Conditions.			
PHOTO BY: GEI CONSULTANTS, INC.			
PHOTOGRAPH NO: 4	DATE: September 4, 2024 10:27 AM	LATITUDE: 39.82585538	LONGITUDE: -80.77358682
DIRECTION: 225°		SITE LOCATION: MARSHALL COUNTY, WEST VIRGINIA	
DESCRIPTION: Mitchell Landfill active area. Note Chimney Drains and Temporary Water Collection Pond.			
PHOTO BY: GEI CONSULTANTS, INC.			

Photographic Log



Project: Mitchell Power Plant, Landfill Inspection
Client: American Electric Power

GEI Project: 2305686

PHOTOGRAPH NO: 5	DATE: September 4, 2024 10:32 AM	LATITUDE: 39.82587645	LONGITUDE: -80.77371414
DIRECTION: 172°	SITE LOCATION: MARSHALL COUNTY, WEST VIRGINIA		
<p>DESCRIPTION:</p> <p>Mitchell Landfill exterior side slope. Address minor erosion before it becomes significant.</p> <p>Note: The erosion identified is outside the active area, upstream of the stormwater pond, and is not affecting landfill operations.</p>			
<p>PHOTO BY:</p> <p>GEI CONSULTANTS, INC.</p>			



PHOTOGRAPH NO: 6	DATE: September 4, 2024 10:37 AM	LATITUDE: 39.82586203	LONGITUDE: -80.77367472
DIRECTION: 182°	SITE LOCATION: MARSHALL COUNTY, WEST VIRGINIA		
<p>DESCRIPTION:</p> <p>Mitchell Landfill Interim Cover. Address minor erosion before it becomes significant.</p> <p>Note: The erosion identified is outside the active area, upstream of the stormwater pond, and is not affecting landfill operations.</p>			
<p>PHOTO BY:</p> <p>GEI CONSULTANTS, INC.</p>			

Photographic Log



Project: Mitchell Power Plant, Landfill Inspection
Client: American Electric Power

GEI Project: 2305686



PHOTOGRAPH NO: 7	DATE: September 4, 2024 10:47 AM	LATITUDE: 39.82387545	LONGITUDE: -80.77862846
DIRECTION: 309°		SITE LOCATION: MARSHALL COUNTY, WEST VIRGINIA	
DESCRIPTION: Leachate Collection Pond. General Photo, Typical Conditions.			
PHOTO BY: GEI CONSULTANTS, INC.			
PHOTOGRAPH NO: 8	DATE: September 4, 2024 10:51 AM	LATITUDE: 39.82443508	LONGITUDE: -80.77898141
DIRECTION: 18°		SITE LOCATION: MARSHALL COUNTY, WEST VIRGINIA	
DESCRIPTION: Leachate Collection Pond. Exposed geosynthetics in good condition.			
PHOTO BY: GEI CONSULTANTS, INC.			

Photographic Log



Project: Mitchell Power Plant, Landfill Inspection
Client: American Electric Power

GEI Project: 2305686



PHOTOGRAPH NO: 9	DATE: September 4, 2024 10:58 AM	LATITUDE: 39.82371128	LONGITUDE: -80.77551957
DIRECTION: 61°		SITE LOCATION: MARSHALL COUNTY, WEST VIRGINIA	
DESCRIPTION: South Pond. General Photo, Typical Conditions.			
PHOTO BY: GEI CONSULTANTS, INC.			
PHOTOGRAPH NO: 10	DATE: September 4, 2024 11:00 AM	LATITUDE: 39.8236873	LONGITUDE: -80.77533555
DIRECTION: 343°		SITE LOCATION: MARSHALL COUNTY, WEST VIRGINIA	
DESCRIPTION: South Pond. Perimeter Ditch. General Photo, Typical Conditions. Note: The erosion identified is outside the active area, upstream of the stormwater pond, and is not affecting landfill operations.			
PHOTO BY: GEI CONSULTANTS, INC.			

Photographic Log



Project: Mitchell Power Plant, Landfill Inspection
Client: American Electric Power

GEI Project: 2305686



PHOTOGRAPH No: 11	DATE: September 4, 2024 11:02 AM	LATITUDE: 39.82370404	LONGITUDE: -80.775492
DIRECTION: 257°		SITE LOCATION: MARSHALL COUNTY, WEST VIRGINIA	
DESCRIPTION: South Pond. Letdown Channel. Typical Conditions.			
PHOTO BY: GEI CONSULTANTS, INC.			
PHOTOGRAPH No: 12	DATE: September 4, 2024 11:08 AM	LATITUDE: 39.82539658	LONGITUDE: -80.77565407
DIRECTION: 256°		SITE LOCATION: MARSHALL COUNTY, WEST VIRGINIA	
DESCRIPTION: Mitchell Landfill Western Stormwater Ditch. Address minor erosion before it becomes significant. Note: The erosion identified is outside the active area, upstream of the stormwater pond, and is not affecting landfill operations.			
PHOTO BY: GEI CONSULTANTS, INC.			

Photographic Log



Project: Mitchell Power Plant, Landfill Inspection
Client: American Electric Power

GEI Project: 2305686



PHOTOGRAPH No: 13	DATE: September 4, 2024 11:10 AM	LATITUDE: 39.8253994	LONGITUDE: -80.77565845
DIRECTION: 355°	SITE LOCATION: MARSHALL COUNTY, WEST VIRGINIA		
DESCRIPTION: Mitchell Landfill Phase 3. Eastern Storm Runoff Perimeter Ditch. Address minor erosion before it becomes significant.			
PHOTO BY: GEI CONSULTANTS, INC.			
PHOTOGRAPH No: 14	DATE: September 4, 2024 11:18 AM	LATITUDE: 39.82287466	LONGITUDE: -80.77569997
DIRECTION: 51°	SITE LOCATION: MARSHALL COUNTY, WEST VIRGINIA		
DESCRIPTION: South Pond Downstream Slope. Ground Cover, Typical Conditions.			
PHOTO BY: GEI CONSULTANTS, INC.			

Photographic Log



Project: Mitchell Power Plant, Landfill Inspection
Client: American Electric Power

GEI Project: 2305686


PHOTOGRAPH No: 15	DATE: September 4, 2024 11:21 AM	LATITUDE: 39.82280658	LONGITUDE: -80.77501144
DIRECTION: 179°		SITE LOCATION: MARSHALL COUNTY, WEST VIRGINIA	
DESCRIPTION: South Pond Downstream Slope. Address/Maintain Woody Vegetation to 12-inches or less.			
PHOTO BY: GEI CONSULTANTS, INC.			
PHOTOGRAPH No: 16	DATE: September 4, 2024 11:25 AM	LATITUDE: 39.82287374	LONGITUDE: -80.77532702
DIRECTION: 308°		SITE LOCATION: MARSHALL COUNTY, WEST VIRGINIA	
DESCRIPTION: South Pond. Decant Structure and Trash Rack working in good condition.			
PHOTO BY: GEI CONSULTANTS, INC.			

Photographic Log



Project: Mitchell Power Plant, Landfill Inspection
Client: American Electric Power

GEI Project: 2305686

PHOTOGRAPH No: 17	DATE: September 4, 2024 11:28 AM	LATITUDE: 39.82337311	LONGITUDE: -80.77562926
DIRECTION: 16°		SITE LOCATION: MARSHALL COUNTY, WEST VIRGINIA	
<p>DESCRIPTION:</p> <p>South Pond. Storm Outlet Channel. Address/Maintain Woody Vegetation to 12-inches or less.</p> <p>Note: The erosion identified is outside the active area, upstream of the stormwater pond, and is not affecting landfill operations.</p>	 A photograph showing a steep, rocky embankment with sparse green vegetation. In the foreground, there is a calm, greenish-brown stormwater pond. The ground around the pond is covered in grey gravel and rocks. The sky is clear and blue.		
<p>PHOTO BY:</p> <p>GEI CONSULTANTS, INC.</p>			