

# Pleasants Power Station Landfill Coal Combustion Residual 2016 Annual Report

Allegheny Energy Supply Company, LLC  
*A FirstEnergy Company*  
Pleasants County, West Virginia

December 2016

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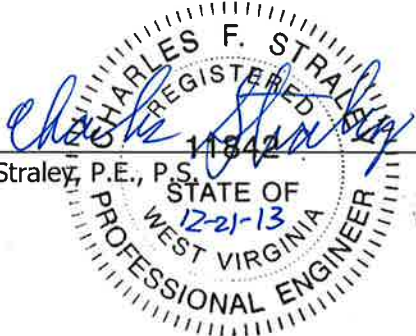
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## Certification/Statement of Professional Opinion

The Annual Inspection of Pleasants Power Station Landfill (Project) was performed by GAI Consultants, Inc. (GAI) on Wednesday, September 7, 2016. The Inspection was based on certain information identified in Section 3.0 that GAI has relied on but not independently verified, and the visual observations made by GAI personnel at the Project site during specific site visits. Therefore this Certification/Statement of Professional Opinion is limited to the information available to GAI at the time the Inspection was performed. On the basis of, and subject to the foregoing, it is my professional opinion, as a Professional Engineer licensed in the State of West Virginia, that the Inspection has been performed in accordance with good and accepted engineering practices as exercised by other engineers practicing in the same discipline(s), under similar circumstances, and at the time and in the same locale. It is my professional opinion that the Annual Inspection Report was prepared consistent with the requirements of the United States Environmental Protection Agency's "Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments," published in the Federal Register on April 17, 2015 with an effective date of October 19, 2015.

The use of the words "certification" and/or "certify" in this document shall be interpreted and construed as a Statement of Professional Opinion and is not and shall not to be interpreted or construed as a guarantee, warranty or legal opinion.

  
Charles F. Straley, P.E., P.S.  
STATE OF WEST VIRGINIA  
PROFESSIONAL ENGINEER

## 1.0 Purpose

Pursuant to Federal Coal Combustion Residuals (CCR) Rule 40 Code of Federal Regulations (CFR) 257.84, each CCR unit is to have an annual inspection and report prepared by a qualified professional engineer. The inspection is to include:

- ▶ a review of available information regarding the status and condition of the CCR unit, including, but not limited to, files in the operating record; and
- ▶ a visual inspection of the CCR unit to identify signs of distress or malfunction of the CCR unit.

The Inspection Report is to include:

- ▶ any changes in geometry of the structure since the previous annual inspection;
- ▶ the approximate volume of CCR contained in the unit at the time of the inspection;
- ▶ 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 unit; and
- ▶ any other change(s) which may have affected the stability or operation of the CCR unit since the previous annual inspection.

## 2.0 Introduction

The Pleasants Power Station (Station) is a coal-fired electric generating station located near the community of Willow Island in Pleasants County, West Virginia (WV). The Station consists of two generating units, which are capable of producing 1,300 megawatts of electricity. CCRs generated at the Station (as well as CCRs from the deactivated Willow Island Power Station) are placed in the Pleasants Power Station Landfill, also known as McElroy's Run Disposal Facility (Landfill), which is located approximately one-half mile east-southeast of the Station. Approximately 99 percent of the wastes placed in the disposal area consist of bottom ash, fly ash, and synthetic gypsum. Miscellaneous wastes from operations and maintenance activities at the Station account for the remaining one percent.

According to the WV Department of Environmental Protection (WVDEP), the Landfill is a Class F CCR Solid Waste Disposal Facility. The approximate center of the Landfill is located at coordinates 39° 21' 55" north latitude and 81° 16' 42" west longitude. Approximately 112 acres are currently permitted for Landfill operations under WVDEP Permit No. WV 0079171. The Landfill is divided into three stages, referred to as Stage I, II, and III. Sub-stages 1A through 1G, 2A, and 2B have been constructed, with Stages 2A and 2B currently receiving CCR material.

Two permanent sedimentation ponds located near the toe of the Landfill footprint are designed to receive leachate and surface runoff flows from the Landfill. Sedimentation Pond No. 1 is the primary sedimentation pond to receive flows. Sedimentation Pond No. 2 is a redundant structure that is used when Pond No.1 is out of service for cleaning and/or maintenance. Principal spillways of both ponds discharge to the sediment pond effluent return sump where water is pumped to the McElroy's Impoundment and ultimately discharged via a National Pollutant Discharge Elimination System permitted outfall.

The leachate detection/groundwater underdrain system for the Landfill consists of perforated pipes in gravel trenches. Water collected in this system is conveyed to Sedimentation Pond No. 1 to undergo settling treatment.

Drainage from the haul road/access road flows into collection channels that direct water to Sedimentation Pond No. 1 for treatment.

### 3.0 Information Review

CCR Rule §257.84(b)(1)(i) states that an inspection includes, “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).”

GAI Consultants, Inc. (GAI) reviewed the following available information prior to performing the inspection:

- ▶ 2015 and 2016 7-day CCR Inspection Reports;
- ▶ 2015 Annual Operations Report;
- ▶ Site Record Drawings; and
- ▶ WVDEP Permit documents.

The reports are listed under the References section. Conversations were held with the Landfill operators before the inspection to obtain additional information, such as operation and maintenance procedures, current state of the Landfill, and the typical process for the operators’ weekly and quarterly reports.

### 4.0 Visual Inspection

#### 4.1 General Information

The inspection was performed on Wednesday, September 7, 2016. The weather conditions were clear and sunny, with temperatures ranging from 82 to 92 degrees Fahrenheit. Mr. Charles Straley, P.E., P.S., Mr. James Joyce, P.E., and Mr. Trent Muraoka, P.E., all of GAI, performed the inspection.

#### 4.2 Inspection Strategy and Route

The GAI team inspected the Landfill and its facilities by making visual observations, recording site conditions, and talking to plant personnel.

The inspection began at the southeast edge of the Landfill and progressed downward along the western side. The inspection then moved to the central area of the Landfill. The inspection progressed to the collection sump at the toe of the Landfill. The inspection continued along the northern perimeter of the Landfill. The inspection ended at the western edge of the Landfill.

#### 4.3 Facility Conditions

The facility conditions are noted in the Annual Inspection Checklist, attached to this report in Appendix A, with the observations described in detail below.

The areas observed on the Landfill embankment slopes appeared stable, and no signs of structural instability such as scarps, cracking, sloughing, surface movements, depressions, or wet areas were observed. A few six-inch deep (maximum) erosion gullies have formed in the Stage 2A and 2B disposal areas due to recent rainfall; however, the liner system is protected by adequate CCR cover in this area. A few six-inch deep holes were found in the Stage 2B area bench cover soil. Some soil-covered slope areas have small bare spots where vegetation has not grown.

Surface water conveyance features (i.e. channels, culverts, etc.) were operating properly. No signs of water leaving the conveyance features were observed. No wet areas or ponding were observed along the Landfill benches, along the toe of the Landfill, nor along downstream pond embankments. On one bench, surface water runoff has started to erode into the cover soil at the intersection of the slope and benches. A few benches contained exposed CCR material.

The piping appeared to be functioning properly as leachate and runoff were observed flowing into Sedimentation Pond No. 1.

Sedimentation Ponds No. 1 and 2 appeared to be functioning properly. The downstream embankments appeared stable and no signs of structural instability such as scarps, cracking, sloughing, surface movements, depressions, or wet areas were observed. No signs of clogging nor improper functioning of the riser structure and pipe system were observed.

There was no fugitive dust at the time of the inspection. Water quality monitoring is conducted on a regular basis.

#### **4.4 Geometry**

Pursuant to 40 CFR §257.84(b)(2)(i), "any changes in geometry of the structure since the previous annual inspection," are reported. The Landfill embankment consists of 20-foot wide benches, constructed every 20 vertical feet, with 3H:1V side slopes. Based on visual inspection and a review of the design drawings, the only changes in the geometry of the Landfill are a result of the current disposal of CCR material. No changes in established areas were noted based on a review of the topography from 2015 and 2016. The geometry of the Landfill is consistent with the design drawings for the Landfill.

#### **4.5 Approximate Volume of CCR**

Pursuant to 40 CFR §257.84(b)(2)(ii), "the approximate volume of CCR contained in the unit at the time of inspection," is reported.

The approximate volume of CCR contained in the Landfill at the time of the inspection was 9,830,350 cubic yards.

#### **4.6 Structural Appearance**

Pursuant to 40 CFR §257.84(b)(2)(iii) and (iv), "any appearance 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 unit;" and "any other change(s) which may have affected the stability or operation of the CCR unit since the previous annual inspection" are reported.

Based on visual inspection, the Landfill appeared to have no structural weaknesses, no existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit at the time of the inspection.

#### **4.7 Unit Performance**

Based on a visual inspection, there did not appear to be any other changes that would affect the stability or operation of the Landfill beyond what was mentioned in the Facility Conditions section.

### **5.0 Conclusions and Recommendations**

During the 2016 visual inspection of the Landfill, GAI did not identify any signs of distress or malfunction that would affect the structural condition of the Landfill. No releases of CCR were observed during the 2016 inspection. The following are GAI's recommendations to be completed during normal maintenance activities:

1. Soil covered slope areas where vegetation hasn't grown should be reseeded. Small erosion rills on the slopes were identified. Cover soil should be placed to repair the rills and seeded.
2. Benches containing exposed CCR material should have cover soil applied and seeded.
3. Holes should be filled with cover soil and seeded.

## 6.0 References

Environmental Protection Agency, 40 CFR Parts 257 and 261, *Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities*, April 17, 2015.

GAI Consultants, Inc., *Federal CCR 7 Day Inspection Forms*, April 2016 through September 2016.

FirstEnergy Corp., *Federal CCR 7 Day Inspection Forms*, January 2016 through March 2016.

FirstEnergy Corp., *2015 Annual Operations Report, Pleasants Power Station*, September 2016.

Application for Renewal, Solid Waste Permit No. WV0079171, McElroy's Run Disposal Facility, Civil & Environmental Consultants, Inc., February 2007.

## **APPENDIX A**

### **Annual Inspection Checklist**



## CCR Landfill Annual Inspection Checklist

Project Name Pleasants Power Station Landfill  
 Project No. C150917.02  
 Inspector Name(s) Charles Straley, James Joyce, Trent Muraoka  
 Time 10:00 to 14:00

Landfill No. 79171  
 Date. 9/7/2016  
 Weather Conditions Sunny  
 Temperature 82° to 92°

Inspection	CCR Volume (CY)
Previous Annual Inspection	9,471,280 cy
Current Annual Inspection	9,830,350 cy
Difference	359,070 cy

Mark "Yes" or "No" if the condition is observed.

<b>Review Available Information (Preamble and 257.84)</b>	Yes	No	<b>Comments</b>
Status and condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Operating record	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Previous inspection forms	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>Proper waste placement (Preamble)</b>			
Waste appears to be placed in stable manner	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Loose piles of waste or other debris staged at site	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>Slope Stability (Preamble and 257.84)</b>			
Existing slopes and embankments appear stable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Surface cracking	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Signs of surface movement	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Sloughing	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Slides	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Unusual depressions	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>Erosion Control (Preamble)</b>			
Controls in-place and functioning	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Some benches need cover soil and vegetation. Needs repaired
Erosion damage (gullies/rills/deep channels) observed within the slopes of the landfill	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Isolated areas on benches in Stages 2A and 2B need repaired
Gullies over nine inches	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>Surface Water (Preamble)</b>			
Wet areas/ponding	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Evidence of water percolation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Surface run-on	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Surface water channels functioning properly	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Culverts/manholes/drop boxes for surface water management functioning properly	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>Liner System (Preamble)</b>			
Liner system installed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Damage to liner system	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Liner system protected from damage from CCR transport and placement equipment	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Liner system properly maintained	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Liner designed, constructed and maintained as required to prevent lateral migration of leachate off-site	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

## CCR Landfill Annual Inspection Checklist

Project Name Pleasants Power Station Landfill  
 Project No. C150917.02  
 Inspector Name(s) Charles Straley, James Joyce, Trent Muraoka  
 Time 10:00 to 14:00

Landfill No. 79171  
 Date. 9/7/2016  
 Weather Conditions Sunny  
 Temperature 82° to 92°

<b>Leachate Collection/Detection System (Preamble)</b>	Yes	No	
Leachate collection/detection system installed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Leachate collection system flowing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Evidence of clogged piping or drainage materials	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Leachate system properly maintained	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Leachate detection zone discharge pipes monitored weekly	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Leachate detection zone flowing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>Dust Control (Preamble)</b>			
Fugitive dust being controlled	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>Contingency Plan (Preamble)</b>			
Plan in place to correct any deficiencies identified during the inspection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>Water Quality Monitoring System (Preamble)</b>			
Water quality monitoring systems properly maintained and functioning	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>Other Issues (257.84)</b>			
Other issues identified during the inspection which are disrupting or have the potential to disrupt the operation or safety of the landfill	<input type="checkbox"/>	<input checked="" type="checkbox"/>	