

2017 Annual Landfill Inspection Report

Amos FGD Landfill

**John E. Amos Plant
Appalachian Power Company
Putnam County, West Virginia**

September 08, 2017

Prepared for: Appalachian Power Co.

Prepared by: American Electric Power Service Corporation

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John E. Amos Plant

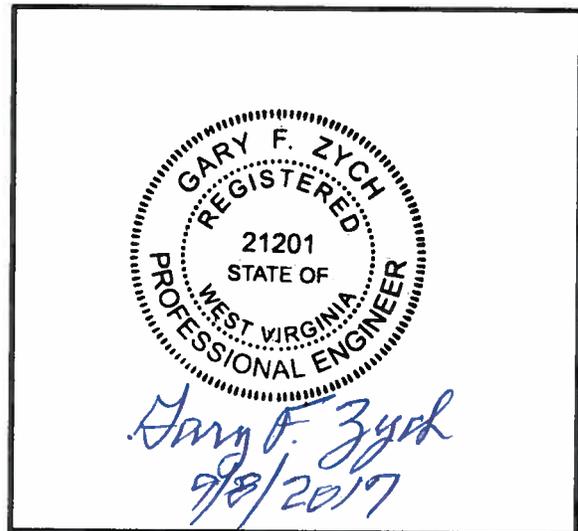
FGD Landfill

Document Number: GERS-17-021

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I certify to the best of my knowledge, information and belief the information contained in this report meets the requirements of 40 CFR § 257.84(b).

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1.0 INTRODUCTION

This report was prepared by AEP- Geotechnical Engineering Services (GES) section, in part, to fulfill requirements of 40 CFR 257.84 and to provide the John E. Amos Plant an evaluation of the facility.

Mr. Brian G. Palmer, P.E. performed the 2017 inspection of the FGD Landfill at the John E. Amos Plant. This report is a summary of the inspection and an assessment of the general condition of the facility. Mr. Rich Fuller, the landfill supervisor for the Plant, was the facility contact. The inspection was performed on August 17, 2017. Weather conditions were sunny and the temperature was in the mid 80's(°F). There was 1.7-inch of rainfall over the seven days prior to the inspection.

2.0 DESCRIPTION OF LANDFILL

The 211 acre landfill consists of 10 sequences or cells. Currently only Cells 1 through 3, consisting of approximately 73 acres have been developed and contain CCR material. Cells 1 through 3 drain to the South Valley. Future sequences (4-10) will drain to the North Valley. Approximately 10.5 acres of Cell 3 are close to final grades and interim cover has been installed. The remainder of Cells 1-3 are active and receiving CCR material

The Landfill utilizes a sediment collection pond and a leachate holding basin at the base of the southern drainage area (South Valley). The sediment collection pond is used to collect all watershed runoff (disturbed and undisturbed) that is not leachate or CCR contact water. The leachate holding basin collects and contains leachate and contact water generated at the Landfill. Wastewater collected in the leachate holding basin is piped back to the Amos Plant's permitted wastewater treatment system for treatment prior to discharge.

Construction is nearing completion of the sediment collection pond and leachate holding pond for the northern drainage area (North Valley). This will allow eventual development of the Cells 4 through 10.

3.0 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 7 day inspection reports, and previous annual inspections has been conducted. Based on the review of the data there were no signs of actual or potential structural weakness or adverse conditions.

4.0 INSPECTION (257.84(b)(1)(ii))

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

No modifications have been made to the geometry of the Landfill since the 2016 annual inspection. The geometry of the landfill has remained essentially unchanged.

4.2 Volume (257.84(b)(2)(ii))

As reported in the 2016 Annual Landfill Inspection Report prepared by GAI, approximately 6,804,700 CY of CCR was contained in the Landfill at the end of July 2016. The CCR Tracking Spreadsheet provided by Landfill staff indicates that 1,084,645 cubic yards of CCR was placed in the Landfill from August of 2016 through July of 2017. From this, it is estimated that the approximate volume of CCR contained in the Landfill at the end of July 2017 to be approximately 7,889,345 CY.

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, 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, etc.) where the current maintenance program has neglected to improve the condition. Usually conditions that have been identified in the previous inspections, but have not been corrected.
- Excessive:** A reference to an observed item (e.g., erosion, seepage, vegetation, etc.) where the current maintenance condition is above or worse than what is normal or desired, and which may have affected the ability of the observer to properly evaluate the structure or particular 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 a landfill has developed a problem that could impact the structural integrity of the landfill. There are four general categories of deficiencies. These four categories are described below:

1. Uncontrolled Seepage (Leachate Outbreak)

Leachate outbreak is the uncontrolled release of leachate from the landfill.

2. Displacement of the Embankment

Displacement of the embankment is large scale movement of part of the dam. Common signs of displacement are cracks, scraps, 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 all structural elements of the landfill perimeter berms, temporary and final covers, drainage features, leachate ponds, open cells, and appurtenances such as chimney drains etc.

Overall the facility is in good condition. The landfill is functioning as intended with no signs of potential structural weakness or conditions which are disrupting to the safe operation of the landfill. Inspection photos are included in Attachment A. Additional pictures taken during the inspection can be made available upon request. A map presenting the site is included in Attachment B.

Active Landfill Disposal Areas (Cell 1, 2 & 3)

1. During the inspection the active disposal areas were being used for waste placement. The chimney drains were functioning as designed and there was no pooling water around the drains. Waste was being compacted as it was placed.

Interim Cover Area (Cell 3)

2. The western portion of Cell 3 has interim cover installed. Generally the interim cover was in good condition with vegetation and no erosion. The most recent areas of interim cover have been seeded and mulched and vegetation starting to develop.
3. The perimeter channel along the north side of this area had some areas of vegetation and an area where some riprap needs repaired. The installation of riprap in this channel was an interim measure at the end of a construction season and the channel is designed to have a fabriform liner as erosion protection.

Leachate Ponds

4. The Leachate Pond was generally in good condition. At the time of the inspection the leachate collection system was being flushed. The flushing activity resulted in an orangish-red discharge into the leachate pond. The turbidity curtain in the leachate pond prevented the discolored water from being pumped to the treatment plant.

Sediment Collection Pond

5. The Sediment Collection Pond was in good condition with no signs of erosion or blockage and appeared to be functioning as designed.
6. The overflow channel from the sediment collection pond was in good shape with some minor vegetation starting to grow between the stone riprap in the channel.

4.5 Changes That Effect Stability or Operation (257.84(b)(2)(iv))

Based on interviews with plant personnel and field observations there were no changes to the Landfill since the last annual inspection that would affect the stability of the Landfill.

5.0 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 intended and active area, interim cover, leachate pond and sediment collection pond are in good condition. The Plant is performing regular maintenance and inspections as required. Several maintenance items have been noted and are described in Section 5.2.
- 2) The vegetation in the anchor trench and damage to the rain flap identified in the 2016 inspection report have been address.

5.2 Maintenance Items

The following maintenance items were identified during the visual inspection. Contact GES for specific recommendations regarding repairs:

- 3) Vegetation was observed in the over flow channel for the sediment collection pond.
- 4) Vegetation was observed in the riprap of the perimeter ditch on the north side of Cell 3.
- 5) Riprap needs fixed in the perimeter ditch on the north side of Cell 3. The perimeter ditch north of Cell 3 was designed with a fabriform liner as the erosion control. The riprap was installed as an interim measure and the facility needs to continue maintain the riprap until the fabriform liner can be installed as part of final cover installation.

5.3 Items To Monitor

The following items were identified during the visual inspection as items to be monitored, see inspection map for locations:

- 6) None identified as part of the inspection.

5.4 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 7-day inspections. A deficiency is defined as either 1) uncontrolled seepage (leachate outbreak), 2) displacement of the embankment, 3) blockage of control features, or 4) erosion, more than minor maintenance. If any of these conditions occur before the next annual inspection contact AEP Geotechnical Engineering immediately.

ATTACHMENT A

Photos

AEP GES Landfill Inspection

Plant Name:

Inspector:

Unit:

Date:

Photo #:

Description:



Notes:

Location:

Photo #:

Description:



Notes:

Location:

AEP GES Landfill Inspection

Plant Name:

Inspector:

Unit:

Date:

Photo #:

Description:



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Location:

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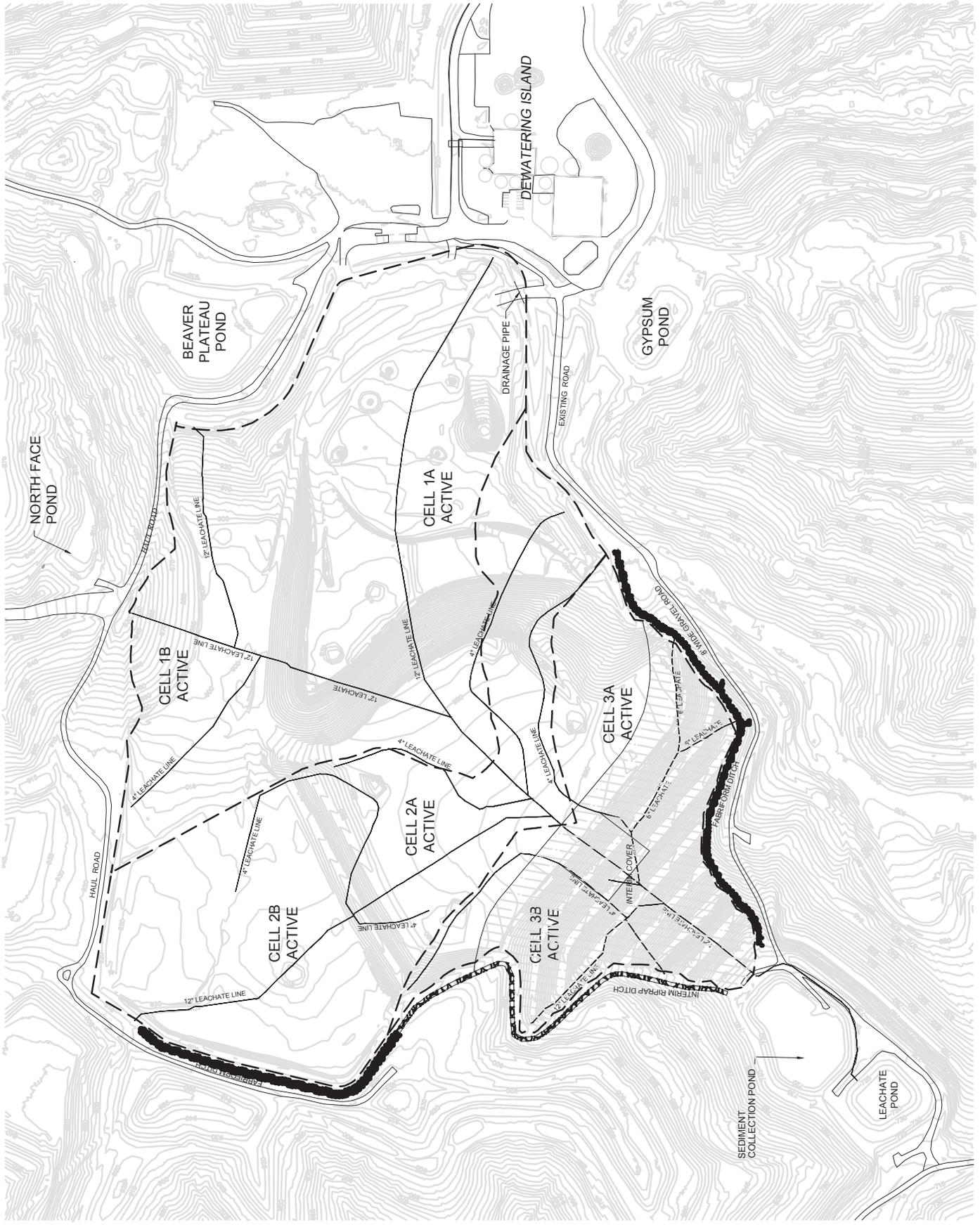


Notes:

Location:

ATTACHMENT B

Site Map



| | | | |
|--|--|------------------------------------|------------------------------------|
| AMERICAN ELECTRIC POWER AEP SERVICE CORP. 1 RIVERSIDE PLAZA COLUMBUS, OH 43215 | GEOTECHNICAL APPLICATOR/POWER COMPANY AMOS PLANT LANDFILL | DRN BY: DATE: SCALE: 1"=400' | DRN BY: DATE: SCALE: 1"=400' |
| | WEST VIRGINIA | SCARY | WEST VIRGINIA |

GRAPHIC SCALE
 400 200 0 400 800
 SCALE: 1"= 400'