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## Inspection Report

**To:** Paul Orban (Conemaugh Generating Station)  
**From:** Richard Southorn, P.E., P.G., CPSWQ  
**Re:** Ash/Refuse Disposal Site – Annual CCR Unit Inspection Report  
**Inspection Date:** October 18, 2017  
**Report Date:** January 16, 2018

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### INTRODUCTION

Title 40 Code of Federal Regulations (CFR) Part 257 addresses, in part, the management of Coal Combustion Residuals (CCR Rule, or Rule) in regulated units, including landfills. Specific to §257.84(b) of the Rule, existing and new CCR landfills must be inspected on an annual basis by a qualified professional engineer. For the Conemaugh Generating Station (operated by GenOn Northeast Management Company), this inspection requirement applies to the existing Ash/Refuse Disposal Site (Ash Disposal Site). In support of this obligation, Mr. Richard Southorn (a qualified professional engineer with Aptim Environmental & Infrastructure, Inc. [APTIM]) conducted an on-site inspection of the Ash Disposal Site on October 18, 2017. The findings from this annual inspection are summarized in the remaining sections of this correspondence.

As required, this report will be placed in the Conemaugh facility's operating record per §257.105(g)(9), noticed to the State Director per §257.106(g)(7), and posted to the publicly accessible internet site per §257.107(g)(7). Placement of the prior annual inspection report into the facility's operating record was accomplished on January 18, 2017. Per §257.84(b)(4), the current report will be entered into the facility's operating record no later than January 18, 2018.

### BACKGROUND

The Ash Disposal Site consists of a valley fill located north of the Station proper, and is operated/maintained in accordance with Pennsylvania Department of Environmental Protection (PADEP) Solid Waste Permit No. 300876. The Ash Disposal Site consists of three stages, including Stage I (closed), Stage II (currently active), and Stage III (permitted contiguous horizontal and vertical expansion currently under construction). The permit modification for Stage III was issued by PADEP on August 26, 2015.

Stage I occupies approximately 160 acres within the northernmost reaches of the valley and was brought online in 1970. Stage I was constructed as an unlined facility and was subsequently closed in 1987. Stage II (brought online in 1985) is presently maintained as the active disposal area, and utilizes a single liner comprised of a 50-mil polyvinyl chloride (PVC)

geomembrane with an accompanying leachate collection and detection system. Stage II occupies approximately 120 acres, and its northern side overlies the outslope of the Stage I disposal area (piggy-backs over Stage I); it extends approximately 2,000 feet southward into the valley from its interface with Stage I.

Construction of Stage III continued in 2017, which included placement of approximately 8.5 acres of the Stage III composite liner. The construction area is located within Stage IIIA to the west of the central contact water underdrain system. Construction activities were ongoing at the time of the landfill inspection; bottom ash was being spread across the composite liner. Once complete, a total of 3.5 feet of protective ash will be placed on top of the composite liner, including one foot of fly ash (top layer) and 2.5 feet of bottom ash. The bottom ash is used to facilitate leachate drainage in addition to offering protection of the underlying geosynthetic materials.

Upon complete buildout, Stage III will occupy an area of approximately 110 acres. The northern side of Stage III will piggy-back over the Stage II disposal area and it will extend southward approximately 2,100 feet where its outslope will terminate approximately 600 feet north of the existing Ash Disposal Site Leachate Surge Pond. At such time when the permitted disposal capacity has been fully expended and final grades attained, any uncapped areas of the Ash Disposal Site will be capped and closed in accordance with the approved Closure Plan.

With respect to the Ash Disposal Site, APTIM's evaluation has focused on the following items as outlined in §257.84(b)(1)(i-ii):

- *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; and*
- *A visual inspection of the CCR unit to identify signs of distress or malfunction.*

Specific to APTIM's preparation of the annual inspection report, and per §257.84(b)(2) (i-iv), the following aspects have been addressed:

- *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.*

## **OPERATING RECORDS REVIEW**

Principal items reviewed as part of this year's inspection included, but were not limited to: Design Drawings, 2016/2017 Weekly and Periodic Landfill Inspection Reports that have been completed since the 2016 Annual Inspection (November 16, 2016), 2016 Annual Landfill Operations Report and the Solid Waste Permit No. 300876. During the site inspection, Mr. Southorn interviewed facility personnel (Mr. Paul Orban) to verify the information contained within the operating record.

### Environmental Control System Overview

- i. Bottom Liner System
  - a. The bottom liner system of the Stage II landfill area is a 50-mil PVC geomembrane.
  - b. The bottom liner system of the Stage III landfill area is a composite liner, comprised from the top to bottom:
    - Primary 60-mil high-density polyethylene (HDPE) liner
    - Geocomposite Drainage Net (Geonet) for leak detection
    - Secondary 60-mil HDPE liner
    - Geosynthetic Clay Liner (GCL)
    - 6-inch subbase
- ii. Leachate Collection System
  - a. The leachate collection systems of Stages II and III utilize gravity flow through the bottom ash material to a contact water underdrain channel, which in turn drains to the Surge Pond. From the pond, leachate is routed to the Leachate Wastewater Treatment Plant (WWTP), with treated effluent managed in accordance with the Station's National Pollutant Discharge Elimination System (NPDES) Permit.
- iii. Stormwater Management
  - a. "Non-contact" stormwater run-off from the closed Stage I area is managed in accordance with the current NPDES permit. Stormwater run-off from the Stage I area is discharged into a stormwater channel separate from the "contact" stormwater of the Stage II area.
  - b. "Contact" stormwater falling on currently active areas of Stage II and future active areas of Stage III is combined with leachate in the underdrain system and is conveyed to the Surge Pond south of the disposal site.
- iv. Cover System
  - a. Stage I disposal area is capped and has established vegetative cover.

- b. The southwest sideslopes of Stage II have intermediate cover. Additionally, the northeast sideslopes had intermediate cover being constructed at the time of the inspection in areas north of the tie-in location with Stage III.
- c. Portions of the Stage II disposal area currently have an intermediate cover in place with established vegetation. These areas include the sideslopes and plateau areas adjacent to Stage I.

#### Summary of 2017 Landfill Construction

- i. Stage II intermediate cover was being installed at the time of inspection on the northeast sideslopes to the north of the future Stage III tie-in.
- ii. The Stage III-A composite liner was installed to the west of the central contact water underdrain system.
- iii. A portion of the Stage I intermediate cover was modified to install a revetment lined swale at the surface. This modification was completed to address ponding water that was occurring on the cap. Water now sheds to the south to permitted Outfall 56.
- iv. The Stage II disposal area is currently accepting CCR.

#### Review of Prior Inspections

- i. Weekly inspections: A review of weekly inspections has concluded that no significant deficiencies occurred at the facility that required remedial actions.
- ii. Annual inspections: A review of the previous annual inspection report has determined that there were no deficiencies or releases, actual or potential structural weaknesses, or concern to the stability of the land form. All environmental control systems were in good operating condition and functioning as intended. Recommendations from the prior report have since been addressed.

#### CCR Disposal

- i. The total in-place disposal quantity of CCR materials is presently estimated at approximately 66,490,373 tons (65,814,261 tons through December 2016 plus 676,112 tons through December 2017).

### **SITE INSPECTION**

The site inspection was performed on October 18, 2017 by Mr. Southorn, and during which time efforts were focused on identification of standard geotechnical signs of distress or malfunction. Specific aspects such as slumping at the toe of slope, tensile cracking, abnormal or excessive erosion on the side slopes, slope bulging, and groundwater/surface water seepage or ponding were assessed. If present, these readily visible signs are potential indicators of structural weakness of the CCR Landfill unit.

### Visual signs of distress or malfunction

No visual signs of distress or malfunction were observed during the inspection. Stormwater drainage features, slope appearance and stability, leachate conveyance mechanisms, and overall site conditions were assessed. Closed portions of the landfill exhibited well established vegetative cover.

### Review of environmental control systems

Stage II disposal area stormwater channels, leachate collection, and intermediate cover areas are functioning as intended. With no evidence to the contrary, the bottom liner system for the Stage II disposal area is believed to be in good operating condition and functioning as intended.

Review of the visible Stage III base liner system appeared to be constructed to the intent of the design and was appropriate.

### Review of Previously Recommended Actions

No corrective actions were required based on the findings of the 2016 Annual Inspection. Recommendations were limited to the continued operation and maintenance of the facility and maintaining access to closed portions of the landfill for inspection purposes. These recommendations were found to have been followed, based on site conditions and the review of weekly inspection logs.

## **CONCLUSIONS**

### Changes in geometry

- i. As of the date of the inspection, peak fill elevation in the active disposal area is approximately 1,450 feet mean sea level.
- ii. Final cover and composite liner construction, as previously described.

### In-Place CCR Disposal Quantities

The total in-place disposal quantity of CCR materials is presently estimated at approximately 66,490,373 tons (65,814,261 tons through December 2016 plus 676,112 tons through December 2017).

### Appearances of an actual or potential structural weakness of CCR unit

At the time of inspection, there were no signs of distress or malfunction that would indicate actual or potential structural weakness at the Ash Disposal Site.

### Changes that may affect the stability or operation of the CCR Unit

There have been no changes to the inspected areas of the Ash Disposal Site that pose a threat or concern to the stability of the land form.

## RECOMMENDATIONS

1. Continue operation and maintenance in the active areas as currently performed.
2. Ensure adequate access to the closed portions of the landfill to maintain the ability to perform weekly visual site structural inspections.

There were no deficiencies or releases identified during the 2017 annual inspection that required the owner or operator to perform corrective actions per §257.84(b)(5).

## PROFESSIONAL ENGINEER'S CERTIFICATION

In accordance with §257.84(b) of the Rule, I hereby certify based on a review of available information within the facility's operating records and observations from my personal on-site inspection (including the photographs contained in Attachment 2), that the Conemaugh Ash Disposal Site does not exhibit any appearances of actual/potential structural weakness that would be disruptive to the normal operations of the Stage II/III CCR Unit. The unit is being operated and maintained consistent with recognized and generally accepted good engineering standards and practices.

Certified by: RSR RICHARD SOUTHORN  
Date: JAN 16, 2018



Richard Southorn, P.E., P.G., CPSWQ  
Professional Engineer Registration No. PE 085411  
Aptim Environmental & Infrastructure, Inc.

## ATTACHMENTS

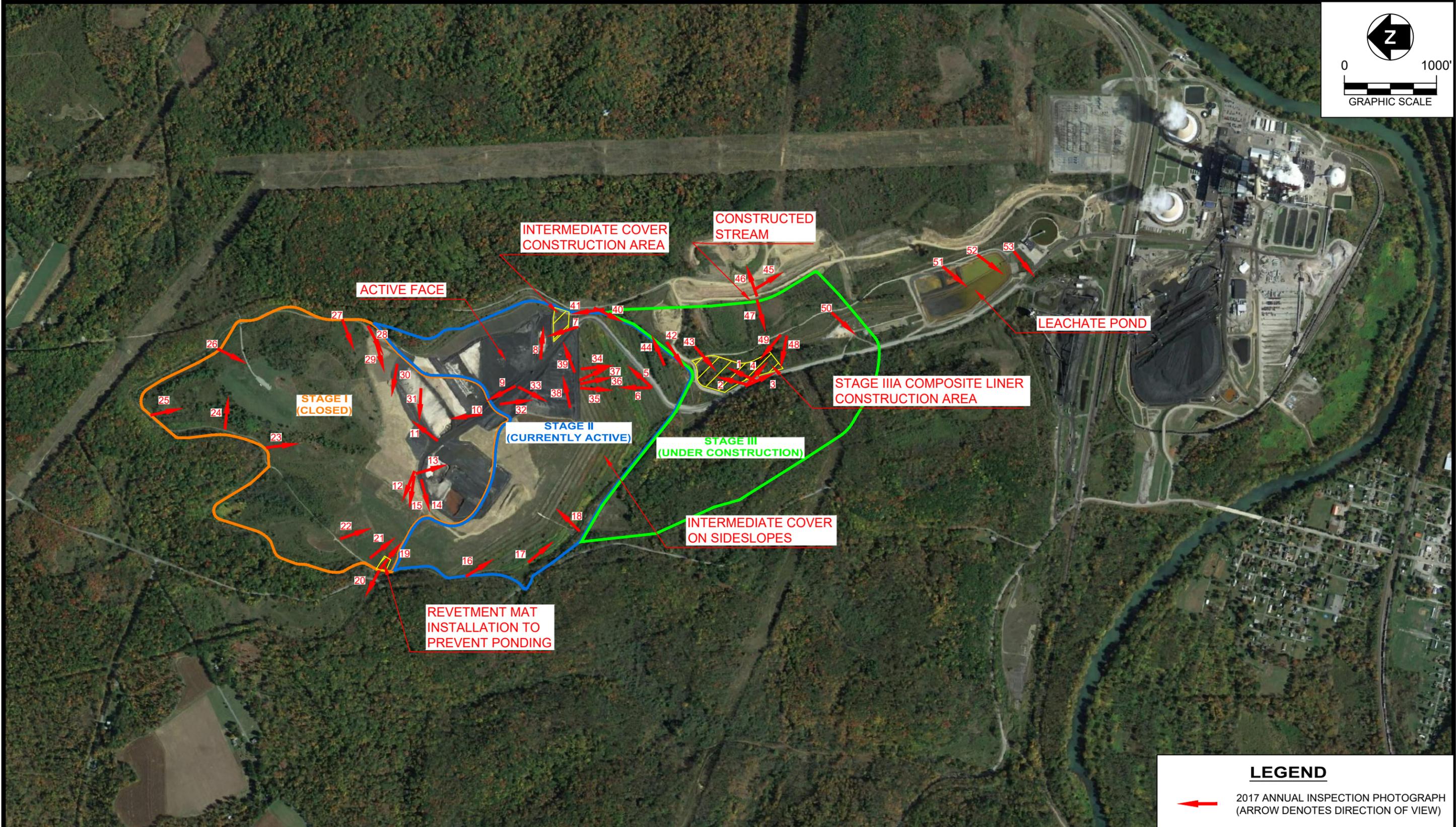
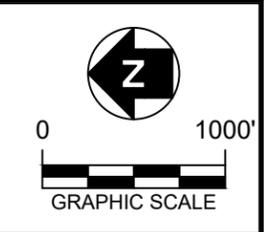
1. Site Map
2. Inspection Photo Log

## REFERENCES

1. 2016 Conemaugh Generating Station Annual Landfill Operations Report.
2. Weekly and Periodic Landfill Inspection Reports, Nov 2016 – Oct 2017.
3. Major Permit Modification Application—Stage III Liner System, April 2014.
4. Conemaugh Stage III Permit Application Drawings, March 2014.
5. 40 Code of Federal Regulations Part 257.

**Attachment 1**

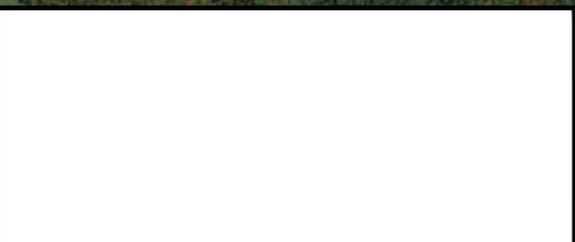
**Site Map**



**LEGEND**

2017 ANNUAL INSPECTION PHOTOGRAPH (ARROW DENOTES DIRECTION OF VIEW)

REV. NO.	DATE	DESCRIPTION



**APTIM Environmental & Infrastructure, Inc.**

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**CONEMAUGH GENERATING STATION  
NEW FLORENCE, PENNSYLVANIA**

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**PHOTOGRAPH LOCATION MAP**

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DRAWN BY:	SJL	APPROVED BY:	RDS	PROJ. NO.:	1009144033	DATE:	JANUARY 2018
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**Attachment 2**  
**Photo Log**

**Photograph No. 1**

**Date:**

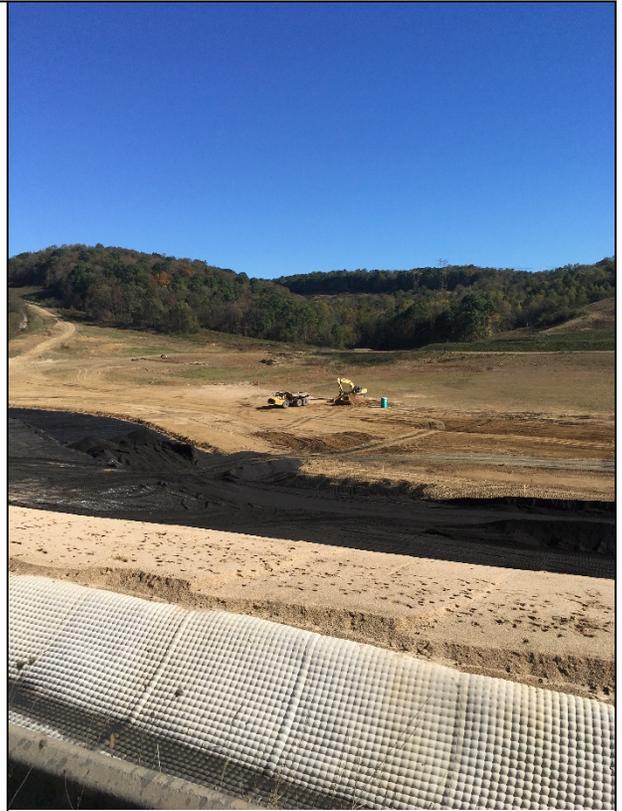
October 18, 2017

**Direction:**

Northeast

**Description:**

Overview of Stage III construction area. In background, soil excavation is occurring in advance of base liner construction that will take place in 2018. An excavator is loading an off-road haul truck with excavated soils. In the midground, bottom ash is being placed over the composite liner system that was installed as part of 2017 construction. A lined non-contact stormwater channel is shown in the foreground.



**Photograph No. 2**

**Date:**

October 18, 2017

**Direction:**

Northeast

**Description:**

Overview of Stage III area showing bottom ash being installed over the footprint of the composite liner system that was constructed in 2017.



**Project:** Conemaugh Annual Inspection

**Project No.:** 1009144003

**Photographer:** Richard Southorn

**Photograph No. 3**

**Date:**

October 18, 2017

**Direction:**

Southeast

**Description:**

Non-Contact stormwater channel. The channel is lined with revetment mat and is free of obstruction.



**Photograph No. 4**

**Date:**

October 18, 2017

**Direction:**

Southeast

**Description:**

Overlooking contact stormwater channel surrounded by bottom ash (channel has a white revetment lining).



**Project:** Conemaugh Annual Inspection

**Project No.:** 1009144003

**Photographer:** Richard Southorn

**Photograph No. 5**

**Date:**

October 18, 2017

**Direction:**

Northeast

**Description:**

Non-contact stormwater channel located on inside toe of access road that runs through the southern portion of the Stage II area. Channel is free of obstruction and in good condition.



**Photograph No. 6**

**Date:**

October 18, 2017

**Direction:**

North

**Description:**

Vegetation on Stage II intermediate cover area. Vegetation is well established. Slopes show no evidence of erosion, sloughing, or other signs of instability.



**Project:** Conemaugh Annual Inspection

**Project No.:** 1009144003

**Photographer:** Richard Southorn

**Photograph No. 7**

**Date:**

October 18, 2017

**Direction:**

North

**Description:**

Stage II cover placement. Photo shows geosynthetics, protective soils, and topsoil being placed. Material is stable and appropriately placed. No erosion rills or rutting are observed.



**Photograph No. 8**

**Date:**

October 18, 2017

**Direction:**

East

**Description:**

Stage II active area. Material is placed in uniform lifts with no ponding water or areas showing potential for future stability issues.



**Project:** Conemaugh Annual Inspection

**Project No.:** 1009144003

**Photographer:** Richard Southorn

**Photograph No. 9**

**Date:**

October 18, 2017

**Direction:**

Northwest

**Description:**

Stage II active area. Area is well maintained with no evidence of ponding water or stability concerns.



**Photograph No. 10**

**Date:**

October 18, 2017

**Direction:**

North

**Description:**

Stage II active area in foreground. Area is well maintained with no evidence of ponding water or stability concerns.

Soil stockpile area shown in background that is being used for intermediate cover construction.



**Project:** Conemaugh Annual Inspection

**Project No.:** 1009144003

**Photographer:** Richard Southorn

**Photograph No. 11**

**Date:**

October 18, 2017

**Direction:**

Northeast

**Description:**

Stage II intermediate cover area. Vegetation is healthy with no bare areas. No evidence of instability or erosion.



**Photograph No. 12**

**Date:**

October 18, 2017

**Direction:**

Northwest

**Description:**

Stage II intermediate cover area. Vegetation is healthy with no bare areas. No evidence of instability or erosion.



**Photograph No. 13**

**Date:**

October 18, 2017

**Direction:**

South

**Description:**

Bottom ash stockpile that will be placed on the composite liner system of Stage III.



**Photograph No. 14**

**Date:**

October 18, 2017

**Direction:**

West Southwest

**Description:**

Stage II intermediate cover area. Vegetation is healthy with no bare areas. No evidence of instability or erosion.



**Photograph No. 15**

**Date:**

October 18, 2017

**Direction:**

West

**Description:**

Stage II intermediate cover area. Vegetation is healthy with no bare areas. No evidence of instability or erosion.



**Photograph No. 16**

**Date:**

October 18, 2017

**Direction:**

Southeast

**Description:**

Stage II intermediate cover area. Vegetation is healthy with no bare areas. No evidence of instability or erosion.



**Photograph No. 17**

**Date:**

October 18, 2017

**Direction:**

East Southeast

**Description:**

Perimeter Road at base of Stage II. Road is well maintained.



**Photograph No. 18**

**Date:**

October 18, 2017

**Direction:**

Northeast

**Description:**

Stage II downchute with revetment lining.



**Photograph No. 19**

**Date:**

October 18, 2017

**Direction:**

Southeast

**Description:**

Revetment mat installed on intermediate cover area of Stage I to improve drainage and eliminate water that was found to pond in this area. Construction completed in September 2017. Water is not ponding and construction appears to have effectively remediated drainage concern.



**Photograph No. 20**

**Date:**

October 18, 2017

**Direction:**

Northwest

**Description:**

Revetment mat described in Photograph No. 19 at its discharge point at Outfall 56.



**Photograph No. 21**

**Date:**

October 18, 2017

**Direction:**

Southeast

**Description:**

Stage I cover showing healthy vegetation that has no bare spots. No evidence of erosion or signs of instability.



**Photograph No. 22**

**Date:**

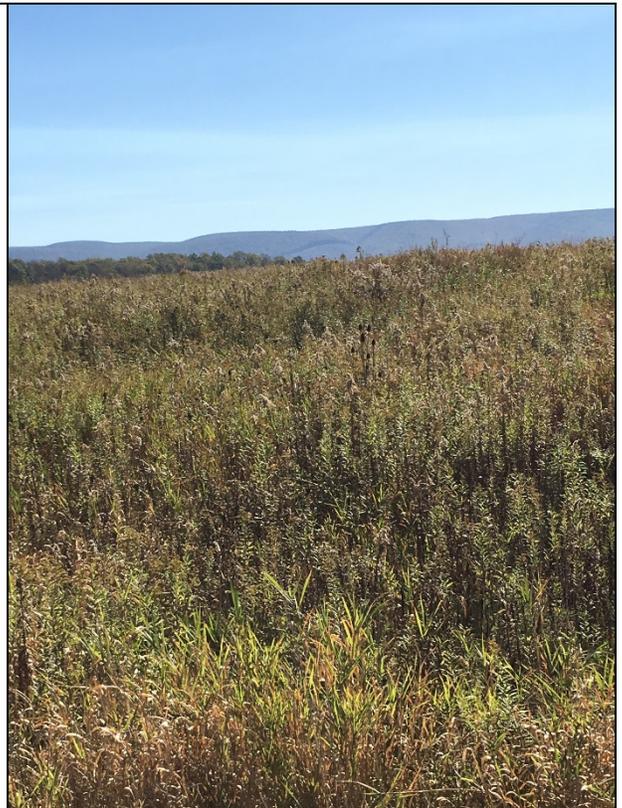
October 18, 2017

**Direction:**

South

**Description:**

Stage I cover showing healthy vegetation that has no bare spots. No evidence of erosion or signs of instability.



**Project:** Conemaugh Annual Inspection

**Project No.:** 1009144003

**Photographer:** Richard Southorn

**Photograph No. 23**

**Date:**

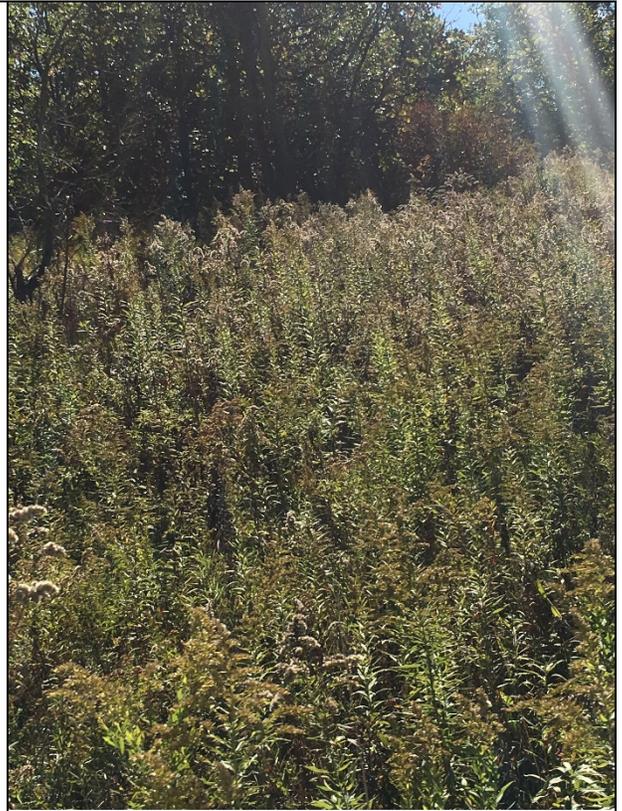
October 18, 2017

**Direction:**

South

**Description:**

Stage I cover showing healthy vegetation that has no bare spots. No evidence of erosion or signs of instability.



**Photograph No. 24**

**Date:**

October 18, 2017

**Direction:**

East

**Description:**

Stage I cover showing healthy vegetation that has no bare spots. No evidence of erosion or signs of instability.



**Photograph No. 25**

**Date:**

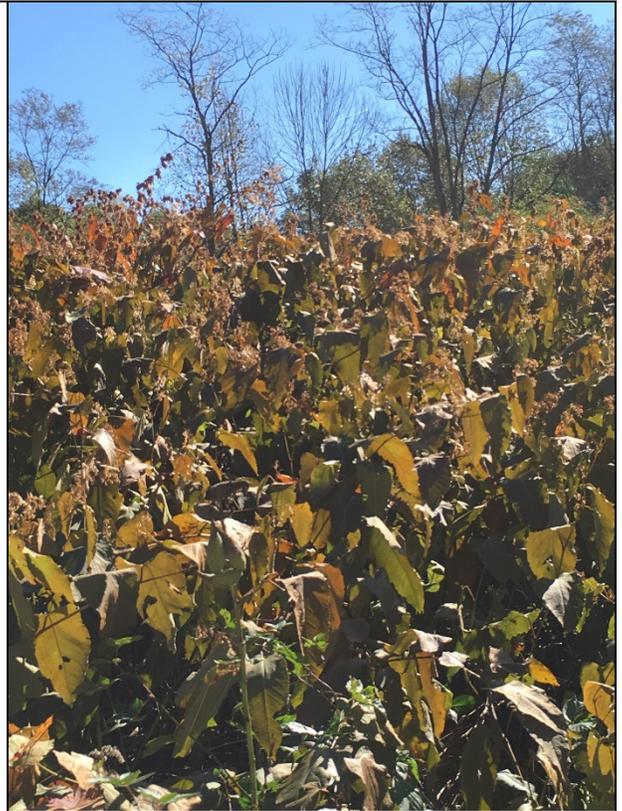
October 18, 2017

**Direction:**

South

**Description:**

Stage I cover showing healthy vegetation that has no bare spots. No evidence of erosion or signs of instability.



**Photograph No. 26**

**Date:**

October 18, 2017

**Direction:**

Southwest

**Description:**

Stage I cover showing healthy vegetation that has no bare spots. No evidence of erosion or signs of instability.



**Project:** Conemaugh Annual Inspection

**Project No.:** 1009144003

**Photographer:** Richard Southorn

**Photograph No. 27**

**Date:**

October 18, 2017

**Direction:**

West Southwest

**Description:**

Stage I cover showing healthy vegetation that has no bare spots. No evidence of erosion or signs of instability.



**Photograph No. 28**

**Date:**

October 18, 2017

**Direction:**

West Southwest

**Description:**

Stage I cover in the foreground and Stage II intermediate cover in background. View of Stage II active area in the distance. Cover areas showing healthy vegetation that has no bare spots. No evidence of erosion or signs of instability.



**Photograph No. 29**

**Date:**

October 18, 2017

**Direction:**

West Southwest

**Description:**

Stage II intermediate cover showing healthy vegetation that has no bare spots. No evidence of erosion or signs of instability.



**Photograph No. 30**

**Date:**

October 18, 2017

**Direction:**

West

**Description:**

Stage II intermediate cover showing healthy vegetation that has no bare spots. No evidence of erosion or signs of instability.



**Photograph No. 31**

**Date:**

October 18, 2017

**Direction:**

West

**Description:**

Stage II intermediate cover showing healthy vegetation that has no bare spots. No evidence of erosion or signs of instability.



**Photograph No. 32**

**Date:**

October 18, 2017

**Direction:**

South

**Description:**

Gypsum in Stage II active area.



**Photograph No. 33**

**Date:**

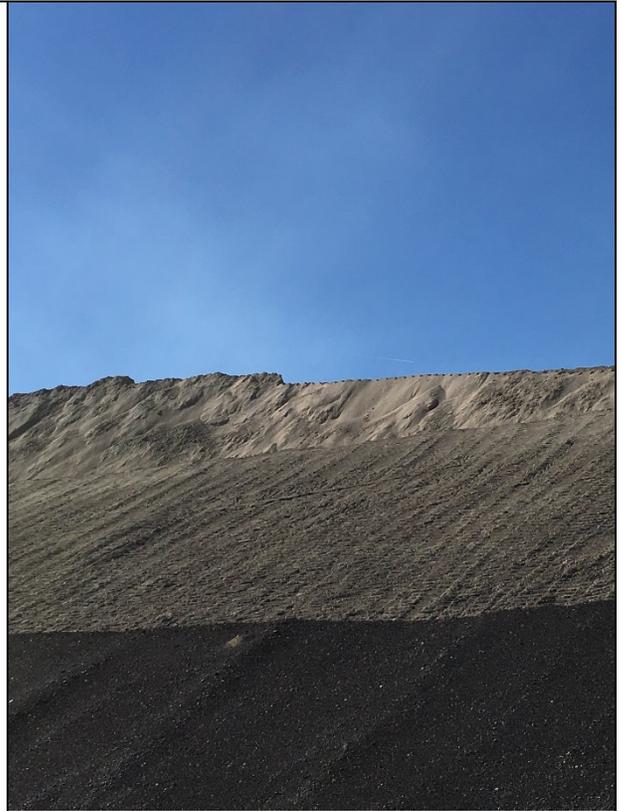
October 18, 2017

**Direction:**

Southwest

**Description:**

Gypsum in Stage II active area.



**Photograph No. 34**

**Date:**

October 18, 2017

**Direction:**

South

**Description:**

Overview of Stage III.



**Photograph No. 35**

**Date:**

October 18, 2017

**Direction:**

South

**Description:**

Bottom ash on composite liner system in Stage III.



**Photograph No. 36**

**Date:**

October 18, 2017

**Direction:**

South

**Description:**

Overview of Stage III area.



**Photograph No. 37**

**Date:**

October 18, 2017

**Direction:**

Southeast

**Description:**

Overview of constructed stream to divert run-on around Stage III.



**Photograph No. 38**

**Date:**

October 18, 2017

**Direction:**

East

**Description:**

Stage II active area. Well maintained. No ponding.



**Photograph No. 39**

**Date:**

October 18, 2017

**Direction:**

East Northeast

**Description:**

Stage II cover construction.



**Photograph No. 40**

**Date:**

October 18, 2017

**Direction:**

Southwest

**Description:**

Contact stormwater channel that drains toward Stage III.



**Photograph No. 41**

**Date:**

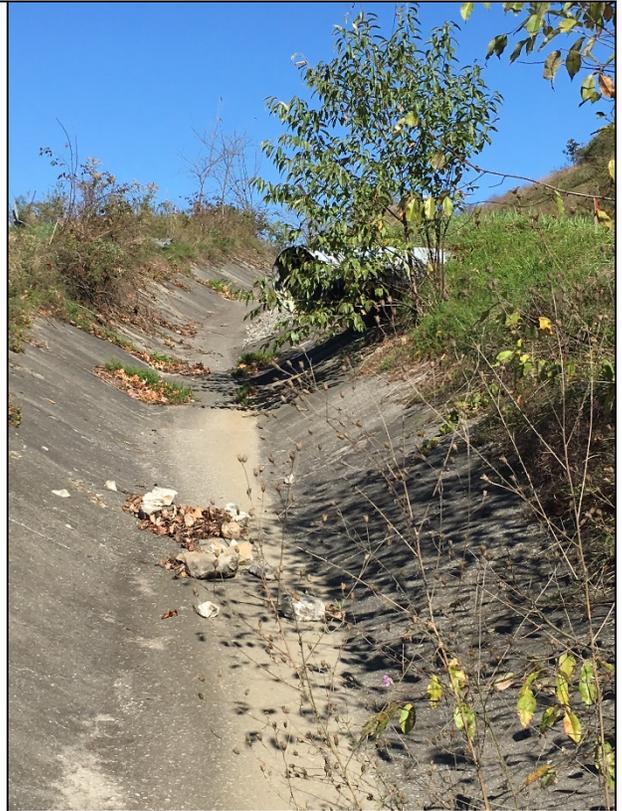
October 18, 2017

**Direction:**

North

**Description:**

Non-Contact stormwater channel.



**Photograph No. 42**

**Date:**

October 18, 2017

**Direction:**

Southwest

**Description:**

Bottom ash on Stage III composite liner.



**Photograph No. 43**

**Date:**

October 18, 2017

**Direction:**

Southwest

**Description:**

Bottom ash on Stage III composite liner.



**Photograph No. 44**

**Date:**

October 18, 2017

**Direction:**

Northeast

**Description:**

Soil borrow pile. Some erosion, but does not impact landfill safety or design.



**Photograph No. 45**

**Date:**

October 18, 2017

**Direction:**

Southwest

**Description:**

Stream constructed to divert run-on into Stage III. Vegetation is well established.



**Photograph No. 46**

**Date:**

October 18, 2017

**Direction:**

Northeast

**Description:**

Riprap channel located between wetland mitigation area and constructed stream.



**Photograph No. 47**

**Date:**

October 18, 2017

**Direction:**

Southwest

**Description:**

Contact stormwater channel. Free of debris.



**Photograph No. 48**

**Date:**

October 18, 2017

**Direction:**

West

**Description:**

Contact stormwater channels – will be toe of slope of Phase IIIA once CCR material is placed.



**Photograph No. 49**

**Date:**

October 18, 2017

**Direction:**

Northwest

**Description:**

Leachate collection pipes.



**Photograph No. 50**

**Date:**

October 18, 2017

**Direction:**

Southwest

**Description:**

Geomembrane rolls to be used for future Stage III construction.



**Photograph No. 51**

**Date:**

October 18, 2017

**Direction:**

Southwest

**Description:**

Leachate Pond.



**Photograph No. 52**

**Date:**

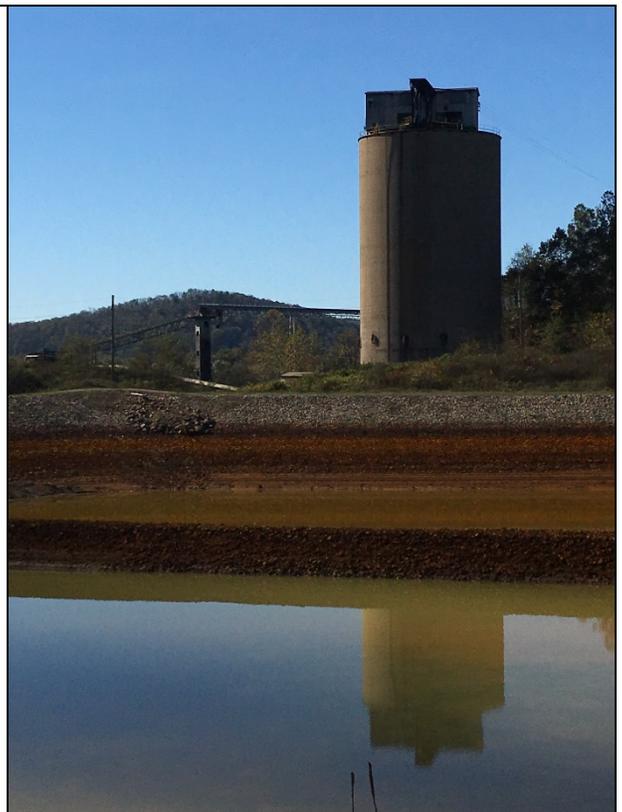
October 18, 2017

**Direction:**

Southwest

**Description:**

Leachate Pond.



**Photograph No. 53**

**Date:**

October 18, 2017

**Direction:**

Southwest

**Description:**

Stream road crossing.

