Inspection Report

To: **James Brunson (Conemaugh Generating Station)**

From: **Richard Southorn, P.E., P.G., CPSWQ**

Re: **Ash/Refuse Disposal Site – Annual CCR Unit Inspection Report No. 2**

Inspection Date: **November 16, 2016**

Report Date: **January 16, 2017**

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, a subsidiary of NRG Energy, Inc. [NRG]), 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 CB&I Environmental & Infrastructure, Inc. [CB&I]) conducted an on-site inspection of the Ash Disposal Site on November 16, 2016. The findings from this second 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 first annual inspection report into the facility's operating record was accomplished on January 18, 2016, satisfying the entry date deadline per §257.84(b)(3)(i). Accordingly and per §257.84(b)(4), the current report will be entered into the facility's operating record no later than January 18, 2017.

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. Stage III will occupy an area of approximately 110 acres and will have a liner system comprised of 60-mil textured high density polyethylene (HDPE) geomembrane. Construction is actively being completed to develop Stage III.

When ultimate development conditions are reached, the northern side of Stage III will piggy-back over the Stage II disposal area and it will extend southward 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.

As of the November 2016 inspection, CCR materials were being placed in the active Stage II disposal area, with ongoing site preparation activities to support the Stage III construction.

With respect to the Ash Disposal Site, CB&I'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 CB&I'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 Weekly and Periodic Landfill Inspection Reports, 2015 Annual Landfill Operations Report (dated, June 2016) and the Solid Waste Permit No. 300876. During the site inspection, Mr. Southorn interviewed facility personnel (Mr. James Brunson) 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.

ii. Leachate Collection System

   a. Stage II disposal area leachate collection system utilizes a gravity underdrain/channel that conveys the leachate and "contact" stormwater 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 within the active cell of Stage II 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. Portions of the Stage II disposal area currently have an intermediate cover in place with established vegetation. These portions are limited to the southern and western slope areas.

Summary of Landfill Construction

i. The Stage II disposal area is currently accepting CCR. Small portions of the Stage II disposal area have an intermediate cover in place; where intermediate cover has been placed, vegetation has been established. Placement of CCR will continue. Construction of the permitted Stage III expansion has continued since the previous annual inspection.

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. Based on review of the 2015 Annual Landfill Operations Report and subsequent information provided by NRG, the total in-place disposal quantity of CCR materials is presently estimated at approximately 65,814,261 tons (65,084,121 tons through December 2015 plus 730,500 tons through December 2016).

SITE INSPECTION

The site inspection was performed on November 16, 2016 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

i. 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

i. 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.

CONCLUSIONS

Changes in geometry

i. As of the date of the inspection, peak fill elevations in the active disposal area were at approximately 1,400 feet mean sea level.

In-Place CCR Disposal Quantities

i. Based on review of the 2015 Annual Landfill Operations Report and subsequent information provided by NRG, the total in-place disposal quantity of CCR materials is presently estimated at approximately 65,814,261 tons (65,084,121 tons through December 2015 plus 730,500 tons through December 2016).

Appearances of an actual or potential structural weakness of CCR unit

i. 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

i. 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 2016 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: _____

Date: 1/16/17

Richard Southorn, P.E., P.G., CPSWQ

Professional Engineer Registration No. PE 085411

CB&I Environmental & Infrastructure, Inc.

ATTACHMENTS

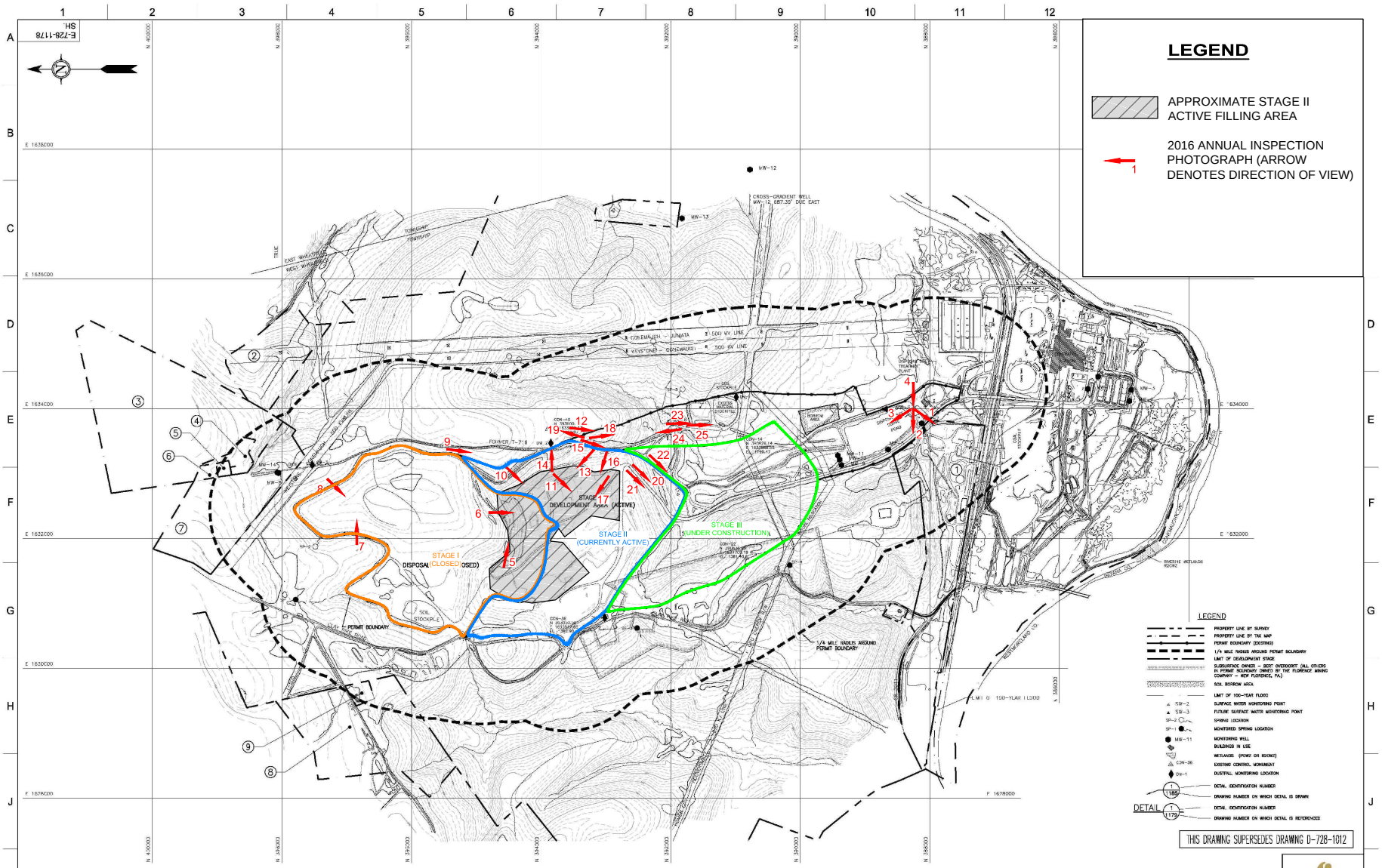
1. Site Map
2. Inspection Photo Log

REFERENCES

1. 2015 Conemaugh Generating Station Annual Landfill Operations Report, June 2016.
2. Weekly and Periodic Landfill Inspection Reports, 2016.
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



PROPERTY OWNERS WITHIN 1/4 MILE RADIUS		
	NAME	ADDRESS
1	CONEMAUGH POWER LLC.	175 CORNELL DRIVE, SUITE 1 – BLAIRSVILLE, PA 15717
2	KENNETH W. WALTERS SR.	1735 MAGDALENE WAY – JOHNSTOWN, PA 15905
3	WILLIAM ADAMY SR.	305 VALLEY BROOK ROAD – NEW FLORENCE, PA 15944
4	THOMAS R. KENLEY	264 SOUTHWELL ROAD – NEW FLORENCE, PA 15944
5	JAMES R. OLMSTEAD	493 VALLEY BROOK ROAD – NEW FLORENCE, PA 15944
6	DONALD E. ROOKEY	433 VALLEY BROOK ROAD – NEW FLORENCE, PA 15944
7	INDIANA COUNTY	C/O COUNTY COMMISSIONERS – 825 PHILADELPHIA STREET – INDIANA, PA 15701
8	EDWARD R. BORING	1504 GAMBLE ROAD – NEW FLORENCE, PA 15944
9	BERTRAM K. BORING	235 HOOD ROAD – NEW FLORENCE, PA 15944

E-728-1178	STAGE III SITE MAP WITH 1/4 MILE RADIUS
E-728-1179	STAGE III SUBGRADE PLAN
E-728-1180	STAGE III LEACHATE AND SUBGRADE PIPING PLANS
E-728-1181	STAGE III FINAL PILE DEVELOPMENT PLAN
E-728-1182	STAGE III PILE DEVELOPMENT PHASING PLAN
E-728-1183	STAGE III CROSS-SECTIONS
E-728-1184	STAGE III HAUL ROAD PROFILE
E-728-1185	STAGE III PERMANENT LINER TERMINATION DETAILS
E-728-1186	STAGE III TEMPORARY LINER TERMINATION DETAILS
E-728-1187	STAGE III CENTRAL LEACHATE UNDERDRAIN AND MISCELLANEOUS LINER DETAILS
E-728-1188	STAGE III SUBGRADE DRAINAGE DETAILS
E-728-1189	STAGE III CHANNEL AND CULVERT DETAILS
E-728-1190	STAGE III BENCHING AND MISCELLANEOUS DETAILS

FOR PERMIT ONLY

SCALE: 1" = 500'

500 0 500 1000

gai consultants
Pittsburgh Office
385 East Waterfront Drive
Homestead, PA 15120
412-476-2000

nrg. CONEMAUGH STATION
ASH / REFUSE DISPOSAL SITE

STAGE III
SITE MAP WITH 1/4 MILE RADIUS
RESIDUAL WASTE PERMIT DRAWING

DRAWN: SY/ 2014	DMH	DRAWING NUMBER:
CHECKED	JFS	E-728-1178
APPROVED		SHEET: 1 OF 1
SIZE: L-34X44		REV: A
DISCIPLINE: CIVIL	SCALE: AS SHOWN	FILE:

CAD FILE PATH: Z:\Energy\2017\C\30770.00 – Conemaugh_Stage III\CAD\Production Drawings\C30770-00-001-00-E-F001.dwg PLOTTED ON: 3/28/14 PLOTTED BY: Diane McNulty PLOT FILE NEEDED.ctb

Attachment 2

Photo Log

Photograph No. 1 **Date:** November 16, 2016 **Direction:** Southwest	
Description: Outlet downstream from leachate surge pond. Clear of obstructions.	

Photograph No. 2 **Date:** November 16, 2016 **Direction:** West	
Description: Close-up view of broad-crested weir at leachate surge pond. Staining shows high liquid level to be below crest.	

Photograph No. 3 **Date:** November 16, 2016 **Direction:** Northwest	
Description: Leachate surge pond. No evidence of overtopping or malfunction.	

Photograph No. 4 **Date:** November 16, 2016 **Direction:** West	
Description: Broad-crested weir at surge pond. Staining shows high liquid level to be below crest. No evidence of release.	

Photograph No. 5 **Date:** November 16, 2016 **Direction:** East	
Description: Final cover on the southern portion of the closed Stage I disposal area. Vegetation is well established and maintained. No evidence of erosion or sloughing.	

Photograph No. 6 **Date:** November 16, 2016 **Direction:** South	
Description: Final cover on the southern portion of the closed Stage 1 disposal area with generating station in background. Vegetation is well established and maintained.	

Photograph No. 7 **Date:** November 16, 2016 **Direction:** East	
Description: Final cover on the northern portion of the closed Stage I disposal area. Vegetation is well established and maintained. No evidence of erosion or sloughing.	

Photograph No. 8 **Date:** November 16, 2016 **Direction:** Southwest	
Description: Final cover on the northern portion of the closed Stage I disposal area. Vegetation is well established. No evidence of erosion or sloughing.	

Photograph No. 9 **Date:** November 16, 2016 **Direction:** South	
Description: Completed side slopes of the Stage II disposal area. No evidence of erosion or sloughing.	

Photograph No. 10 **Date:** November 16, 2016 **Direction:** Southwest	
Description: Active filling within the Stage II disposal area. No evidence of erosion or airborne dust.	

Photograph No. 11 **Date:** November 16, 2016 **Direction:** Southwest	
Description: Active filling within the Stage II disposal area. No evidence of erosion or airborne dust. Active operations area is well maintained.	

Photograph No. 12 **Date:** November 16, 2016 **Direction:** South	
Description: View of the Stage III construction area from perimeter road.	

Photograph No. 13 **Date:** November 16, 2016 **Direction:** Northwest	
Description: Active filling within the Stage II disposal area. No evidence of erosion or airborne dust.	

Photograph No. 14 **Date:** November 16, 2016 **Direction:** East	
Description: Dust-fall monitor utilized to assess potential fugitive emissions.	

Photograph No. 15 **Date:** November 16, 2016 **Direction:** Southwest	
Description: Perimeter stormwater drainage channels along eastern limits of Stage II disposal area. "Non-contact" channel shown on left. "Contact" channel (painted red) shown on right.	

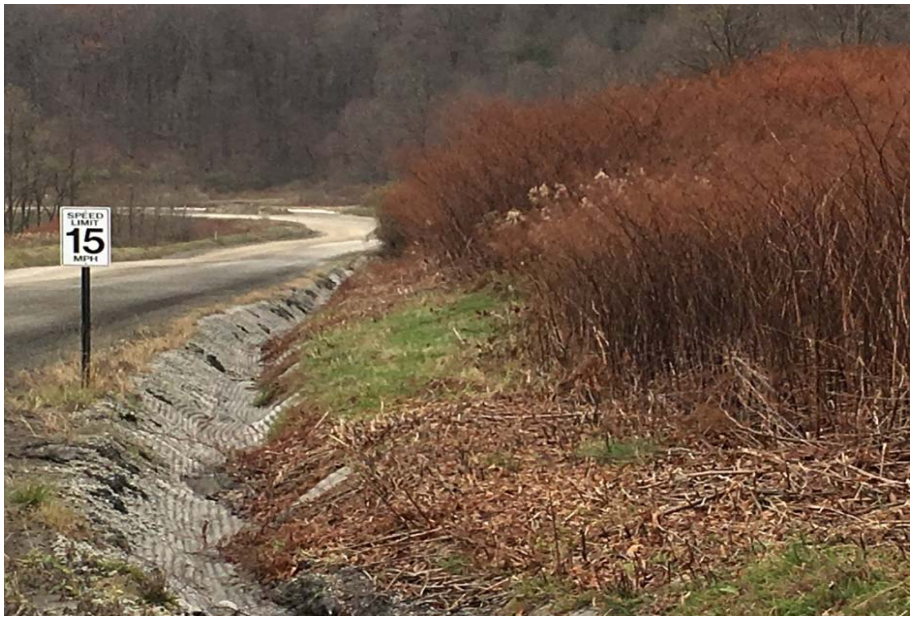
Photograph No. 16 **Date:** November 16, 2016 **Direction:** West-Northwest	
Description: Designated gypsum staging in active filling area of Stage II. No evidence of erosion or airborne dust.	

Photograph No. 17 **Date:** November 16, 2016 **Direction:** Northwest	
Description: Active filling operations within Stage II showing coal ash bench. No evidence of erosion or airborne dust.	

Photograph No. 18 **Date:** November 16, 2016 **Direction:** South-Southeast	
Description: "Non-contact" stormwater outfall into perimeter channel. No evidence of erosion or flow obstruction.	

Photograph No. 19 **Date:** November 16, 2016 **Direction:** North-Northeast	
Description: Stormwater BMP in non-contact perimeter drainage channel. No evidence of erosion or malfunction.	

Photograph No. 20 **Date:** November 16, 2016 **Direction:** Southwest	
Description: View from southern side of haul road into Stage II disposal area. Well maintained with speed limit enforced.	

Photograph No. 21 **Date:** November 16, 2016 **Direction:** Southwest	
Description: "Contact' stormwater channel along northern side of Stage II haul road, lined with fabric-formed concrete. No evidence of erosion or obstructions.	

Photograph No. 22 **Date:** November 16, 2016 **Direction:** Southwest	
Description: Concrete-lined "contact" stormwater channel, painted red for identification. No evidence of obstructions.	

Photograph No. 23 **Date:** November 16, 2016 **Direction:** South	
Description: Stream relocation to support ongoing Stage III development; rip-rap channels provide outlet from the newly constructed wetland mitigation area. No evidence of erosion or malfunction.	

Photograph No. 24 **Date:** November 16, 2016 **Direction:** North	
Description: Stream relocation to support Stage III development. No evidence of erosion or obstruction.	

Photograph No. 25 **Date:** November 16, 2016 **Direction:** South	
Description: Stream relocation to support Stage III development. No evidence of erosion or obstruction.	