



Inspection Report

To: Jill Buckley (Cheswick Generating Station)

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

Re: Cheswick Ash Disposal Site – Annual CCR Unit Inspection Report No. 2

Inspection Date: November 18, 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 Cheswick Generating Station (operated by NRG Power Midwest LP), this inspection requirement applies to the existing Cheswick Ash 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 18, 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 Cheswick 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 is a captive landfill used for the disposal of CCR materials and other Pennsylvania residual wastes generated at the Cheswick Station, and is operated/maintained in accordance with Pennsylvania Department of Environmental Protection (PADEP) Solid Waste Permit No. 300720. Active operations are ongoing in the South Valley (Phase I; 51 acres), while the North Valley (Phase II; 31 acres) remains as an unpermitted potential future phase within the Solid Waste Permit boundary. If ever constructed, the North Valley would be considered a new CCR Landfill per the Rule. Construction of the South Valley commenced in 1980 and disposal of CCR materials

began in 1982. When ultimate development conditions are reached, the final upper surface elevation of South Valley will be at approximately 1,200 feet mean sea level (ft. MSL). As of the November 2016 inspection date, CCR lifts were being added to the active disposal area between approximate elevations 1,089 to 1,101 ft. MSL.

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 Solid Waste Permit No. 300720. During the site inspection, Mr. Southorn interviewed facility personnel (Ms. Jill Buckley) to verify the information contained within the operating record.

Environmental Control System Overview

i. Leachate Collection System

- a. The South Valley disposal area has a gravity underdrain system. This system consists of a below-grade piping network that facilitates leachate conveyance ultimately for treatment at the Monarch Mine Dewatering Plant (MMDP). Treated effluent from the MMDP is discharged to Little Deer Creek via Outfall 002 in accordance with the Cheswick Station's National Pollutant Discharge Elimination System (NPDES) Permit.

ii. Stormwater Management

- a. "Non-contact" stormwater from the South Valley disposal area is routed (via NPDES-permitted perimeter drainage channels) to the sedimentation pond located at the base of the landfill.
- b. "Contact" stormwater from within the active disposal area is collected in the leachate underdrain system and routed for treatment in the MMDP as described above.

iii. Cover System

- a. The eastern slope and portions of the northern and southern slopes of South Valley have final cover and established vegetation. The final cover system on the slopes includes benches to dissipate energy build-up and reduce erosion from stormwater run-off.

Summary of Landfill Construction

- i. As previously noted, CCR material was being placed in the South Valley disposal area between approximate elevations 1,089 to 1,101 ft. MSL during the November 2016 inspection. Exterior slopes have a final cover in place along with well-established and properly maintained vegetation.

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.

CCR Disposal

- i. At the time of the first annual inspection in October 2015, the in-place disposal estimate was approximately 2,824,708 tons. Since then, approximately 135,110 tons of additional material have been disposed (through November 2016). Therefore, the total in-place disposal quantity is presently estimated at approximately 2,959,818 tons.

SITE INSPECTION

The site inspection was performed on November 18, 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

- ii. 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 South Valley exhibited well established vegetative cover.

Review of Environmental Control Systems

- i. With no evidence to the contrary, the environmental control systems at South Valley are believed to be in good operating condition and functioning as intended. At the time of the inspection, leachate and stormwater conveyance systems were operating as designed.

CONCLUSIONS

Changes in Geometry

- i. As of the date of the inspection, peak fill elevations in the active disposal area were at approximately 1,101 ft. MSL.

In-Place CCR Disposal Quantities

- i. At the time of the first annual inspection in October 2015, the in-place disposal estimate was approximately 2,824,708 tons. Since then, approximately 135,110 additional tons have been disposed (through November 2016). Therefore, the total in-place disposal quantity is approximately 2,959,818 tons.

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 South Valley.

Changes that May Affect the Stability or Operation of the CCR Unit

- i. There have been no changes to the South Valley area that pose a threat or concern to the stability of the land form.

RECOMMENDATIONS

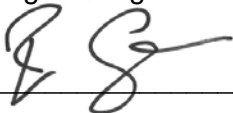
1. Continue operation and maintenance in the active areas as currently performed.
2. Ensure adequate access to the closed portions of the landfill to maintain the ability to perform weekly visual site structural inspections.

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 Cheswick Ash Disposal Site does not exhibit any appearances of actual/potential structural weakness that would be disruptive to the normal operations of the South Valley 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 PE085411
CB&I Environmental & Infrastructure, Inc.



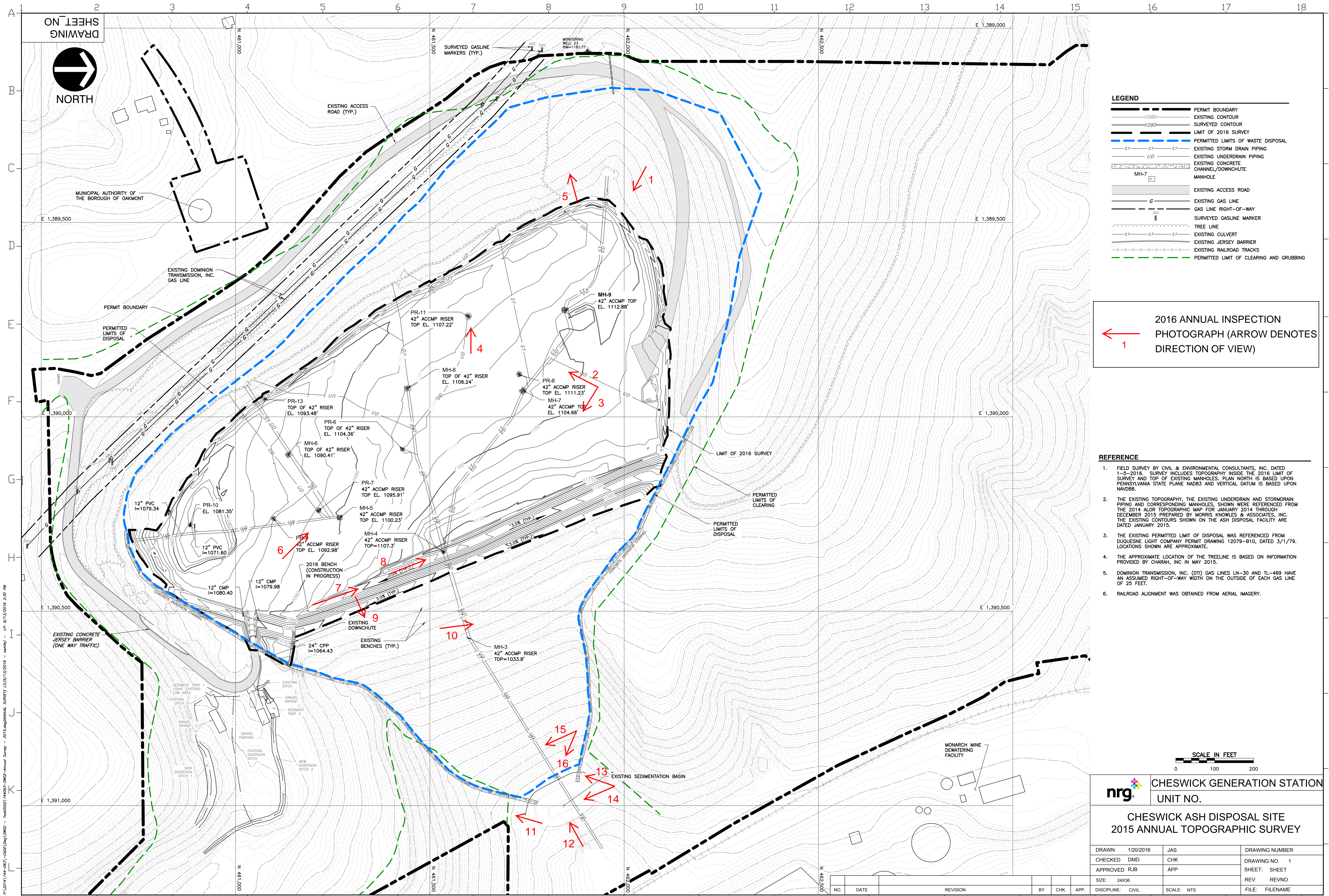
ATTACHMENTS

1. Site Map
2. Inspection Photo Log

REFERENCES

1. 2015 Cheswick Generating Station Annual Landfill Operations Report, June 2016.
2. Weekly and Periodic Landfill Inspection Reports, 2016.
3. 40 Code of Federal Regulations Part 257.

Attachment 1
Site Map



Attachment 2
Photo Log



Photograph No. 1

Date:

November 18, 2016

Direction:

Southeast

Description:

Active filling area with leachate and “contact” stormwater collection manholes. No evidence of erosion or airborne dust.



Photograph No. 2

Date:

November 18, 2016

Direction:

Southwest

Description:

Active filling area with collection manholes. No evidence of erosion or airborne dust. Gypsum and bottom ash materials noted.





Photograph No. 3

Date:

November 18, 2016

Direction:

Southeast

Description:

Active filling operations in progress. No evidence of erosion or airborne dust.



Photograph No. 4

Date:

November 18, 2016

Direction:

West

Description:

"Contact" stormwater collection manhole. No evidence of distress or malfunction.





Photograph No. 5

Date:

November 18, 2016

Direction:

West

Description:

"Non-contact" stormwater pipe along western side slope. No evidence of erosion or sloughing.



Photograph No. 6

Date:

November 18, 2016

Direction:

Northwest

Description:

Active filling area with leachate and "contact" stormwater collection manholes.





Photograph No. 7

Date:

November 18, 2016

Direction:

North

Description:

Southern berm bounding the active filling area. No evidence of erosion, sloughing, or instability.



Photograph No. 8

Date:

November 18, 2016

Direction:

North

Description:

Staged setback of the perimeter berm for the active area. Final cover will be installed following the completion of the active area perimeter berm. No evidence of erosion, sloughing, or instability.





Photograph No. 9

Date:

November 18, 2016

Direction:

Northeast

Description:

"Non-contact" stormwater downchute installed within final cover along eastern side slope. No evidence of flow obstruction.



Photograph No. 10

Date:

November 18, 2016

Direction:

North

Description:

Final cover system along eastern side slope. Vegetation is well established and maintained. No evidence of erosion or sloughing.





Photograph No. 11

Date:

November 18, 2016

Direction:

Southwest

Description:

Dust-fall monitor utilized to assess potential fugitive emissions.



Photograph No. 12

Date:

November 18, 2016

Direction:

West

Description:

Sedimentation pond ("non-contact" stormwater) outlet flume and pipe structure. No evidence of malfunction or flow obstruction.





Photograph No. 13

Date:

November 18, 2016

Direction:

Southwest

Description:

Final cover system along the lower half of the landfill. Vegetation is well established and maintained. No evidence of erosion or sloughing. No slope stability issues identified.



Photograph No. 14

Date:

November 18, 2016

Direction:

Southeast

Description:

Sedimentation pond. No evidence of sloughing or malfunction.





Photograph No. 15

Date:

November 18, 2016

Direction:

South

Description:

Eastern slope final cover. No evidence of erosion or sloughing.



Photograph No. 16

Date:

November 18, 2016

Direction:

East-Southeast

Description:

Inlet channel (one of two) to the sedimentation pond.

