

2019

**J. M. Stuart Station
Landfill No. 11 Annual Inspection
EPA Permit to Install: 06-7028**



**Prepared by:
John Hendrix, PE**



Date: December 6, 2019

Purpose

I have conducted the following annual inspection in compliance of the Federal CCR Rule, 40 CFR Part 257.

Statement of Qualifications

I am a practicing Civil/Geotechnical Professional Engineer registered in the State of Ohio employed by AES Ohio Generation, LLC. I am experienced in the design, maintenance and operation of landfills.

Review of Landfill Documentation [§ 257.84(b)(1)(i)]

Design, History, and Operation of the Facility

Landfill No. 11 was permitted in 2003. This facility is constructed on top of closed Ash Pond 8. Construction of the west area started in 2004 and the west area was completed in 2012. The facility is designed to contain 7.8 million cubic yards of waste material. Receipt of material began in 2006 after completing the west area liner in 2005.

Permanent side slopes at the facility are 3:1 slope with a 20-foot wide bench for every 20 feet of vertical rise. The liner is 1.5 feet of compacted clay with a permeability of 1×10^{-7} or lower. The cap is 2.0 feet of compacted clay with six inches of vegetative cover. Drainage media consists of a minimum of one foot of bottom ash. The bottom is crowned to allow for settlement of the pond ash material below and still provided drainage of leachate through the perimeter drain which is outleted approximately every 100 feet into a perimeter ditch.

Fly ash, the primary disposal material, is moisture conditioned and compacted to 90% maximum dry density or greater. Inactive areas are covered with temporary cover.

Periodic Inspections

A thorough review of weekly facility inspections was conducted. Poor vegetative cover noted in the 2018 inspections had been rectified early in 2019. Also noted in some weekly inspection was material deposits in the perimeter ditch which had also been removed.

Visual Inspection of Landfill [§ 257.84(b)(1)(ii)]

Landfill No. 11 is in good structural condition. Slopes of the east area had been reseeded in the spring and had well established cover. A couple of small rills were observed just east of the access road. There is some erosion in the temporary cover in the east portion of the landfill.

Changes in Geometry [§ 257.84(b)(2)(i)]

There were no changes to permanent slopes in the form of slides, sloughs or bulges or other indication of deformation or other indicators of instability. No additional waste material was placed in landfill in 2019.

Volume of CCR [§ 257.84(b)(2)(ii)]

Landfill 11 contains approximately 4.1 million cubic yards of CCR material.

Structural Weakness [§ 257.84(b)(2)(iii)]

No indication was found of an actual or potential structural weakness of the CCR unit or any existing condition that was disrupting or had the potential to disrupt the operation and safety of the CCR unit and appurtenant structures.

Other Changes [§ 257.84(b)(2)(iv)]

No changes were found to the CCR unit which could affect the stability or operation of the impounding structure since the previous annual inspection.

Appendix A

CCR Rule Requirements for Landfill Inspections

§ 257.84 Inspection and Reporting Requirements for CCR Landfills.

(a) *Inspections by a qualified person.*

(1) All CCR landfills and any lateral expansion of a CCR landfill must be examined by a qualified person as follows:

(i) At intervals not exceeding seven days, inspect for any appearances of actual or potential structural weakness and other conditions which are disrupting or have the potential to disrupt the operation or safety of the CCR unit; and

(ii) The results of the inspection by a qualified person must be recorded in the facility's operating record as required by § 257.105(g)(8).

(2) *Timeframes for inspections by a qualified person—*

(i) *Existing CCR landfills.* The owner or operator of the CCR unit must initiate the inspections required under paragraph (a) of this section no later than October 19, 2015.

(ii) *New CCR landfills and any lateral expansion of a CCR landfill.* The owner or operator of the CCR unit must initiate the inspections required under paragraph (a) of this section upon initial receipt of CCR by the CCR unit.

(b) *Annual inspections by a qualified professional engineer.*

(1) Existing and new CCR landfills and any lateral expansion of a CCR landfill must be inspected on a periodic basis by a qualified professional engineer to ensure that the design, construction, operation, and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering standards. The inspection must, at a minimum, include:

(i) 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); and (ii) A visual inspection of the CCR unit to identify signs of distress or malfunction of the CCR unit.

(2) *Inspection report.* The qualified professional engineer must prepare a report following each inspection that addresses the following:

(i) Any changes in geometry of the structure since the previous annual inspection;

(ii) The approximate volume of CCR contained in the unit at the time of the inspection;

(iii) 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

(iv) Any other change(s) which may have affected the stability or operation of the CCR unit since the previous annual inspection.

(3) *Timeframes for conducting the initial inspection—*

(i) *Existing CCR landfills.* The owner or operator of the CCR unit must complete the initial inspection required by paragraphs (b)(1) and (2) of this section no later than January 18, 2016.

(ii) *New CCR landfills and any lateral expansion of a CCR landfill.* The owner or operator of the CCR unit must complete the initial annual inspection required by paragraphs (b)(1) and (2) of this section no later than 14 months following the date of initial receipt of CCR in the CCR unit.

(4) *Frequency of inspections.* The owner or operator of the CCR unit must conduct the inspection required by paragraphs (b)(1) and (2) of this section on an annual basis. The date of completing the initial inspection report is the basis for establishing the deadline to complete the first subsequent inspection. Any required inspection may be conducted prior to the required deadline provided the owner or operator places the completed inspection report into the facility's operating record within a reasonable amount of time. In all cases, the deadline for completing subsequent inspection reports is based on the date of completing the previous inspection report. For purposes of this

section, the owner or operator has completed an inspection when the inspection report has been placed in the facility's operating record as required by § 257.105(g)(9).

- (5) If a deficiency or release is identified during an inspection, the owner or operator must remedy the deficiency or release as soon as feasible and prepare documentation detailing the corrective measures taken.
- (c) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in § 257.105(g), the notification requirements specified in § 257.106(g), and the internet requirements specified in § 257.107(g).

Appendix B

Reference Documents Reviewed

- ❖ Landfill permit
- ❖ Previous weekly inspection reports
- ❖ 2015 and 2016 Annual Inspection Report
- ❖ Landfill Run-on Run-off Plans
- ❖ Drawings
 - 300-46 1175 SH 01R through 20R
 - 300-46 1176 SH C000 though C900

Appendix C
Inspection Check List

Landfill Field Inspection Report

LANDFILL ANNUAL FIELD INSPECTION FORM

Unit Name: Landfill No. 11

Facility Name: J.M. Stuart Station

Permits: 06-7058

CCR Unit

ACTION

Bottom Liner Material: Compacted clay < 1X10⁻⁷ Thickness: 24 inches

Leachate Drainage Media: Bottom ash Thickness: 12 inches

Cover Material: Compacted clay < 1X10⁻⁷ Thickness: 24 inches

Vegetative Cover Material: 6 inches

Other details: The bottom liner is sloped to the south for drainage.

Inspection Date(s): November 27, 2019

Weather/Surface Conditions During Inspection: Heavy cloud cover with intermittent showers, high winds.

NONE
 MONITOR
 MAINTENANCE
 ENGINEER

PERMANENT COVER Gradient: Horizontal: 3 Vertical: 1 (est. meas.)

VEGETATION

Trees:

DESCRIPTION AND LOCATION:

Brush:

DESCRIPTION AND LOCATION:

Ground Cover:

DESCRIPTION: Grass

CONDITION: Grass cover is mostly in good condition. A couple of small rills were observed east of the access road below the first bench.

EROSION

DESCRIPTION AND LOCATION:

Good condition.

INSTABILITIES: (SLIDES, CRACKS, BULGES, etc.)

SLIDES/SLOUGHS:

DESCRIPTION AND LOCATION:

CRACKS:

DESCRIPTION AND LOCATION:

BULGES:

DESCRIPTION AND LOCATION:

OTHER:

DESCRIPTION AND LOCATION:

SEEPAGE/WET AREA

DESCRIPTION AND LOCATION:

MONITORING INSTRUMENTATION:

DESCRIPTION: Ground water monitoring wells are located around the perimeter of the landfill. This area is also equipped with settlement plates and piezometers to monitor settlement of closed Ash Pond 8 situated below the landfill during filling operations.

CONDITION: Monitoring instruments are in good condition.

OTHER (rodent burrows, ruts, etc.)

DESCRIPTION AND LOCATION:

ACTION

NONE
MONITOR
MAINTENANCE
ENGINEER

DESCRIPTION AND LOCATION:

DESCRIPTION AND LOCATION:

DESCRIPTION AND LOCATION:

HYDRAULIC STRUCTURES

LEACHATE DRAINS

NONE MONITOR MAINTENANCE ENGINEER

DESCRIPTION: Leachate drains outlet approximately every 100 feet along the southern portion of the landfill.

CONDITION: In good condition

BENCH DRAINS

NONE MONITOR MAINTENANCE ENGINEER

DESCRIPTION: 24" diameter HDPE pipe with inlets on each bench.

CONDITION: Good

OBSTRUCTION NOTED: (YES NO) DESCRIBE IF YES:

PERIMETER DITCH

NONE MONITOR MAINTENANCE ENGINEER

DESCRIPTION: Combined leachate, contact and storm water clay lined ditch with grass cover and concrete gutters on the south side.

CONDITION: good

SEEPAGE NOTED: (YES NO) DESCRIBE IF YES:

WATER COLLECTION POND

NONE MONITOR MAINTENANCE ENGINEER

DESCRIPTION: The perimeter ditch outlets through HDPE piping into the Pond 6 which is addressed in another report.

CONDITION:

EROSION NOTED: (YES NO) DESCRIBE IF YES:

INLET

NONE MONITOR MAINTENANCE ENGINEER

DESCRIPTION: 2 sets of three concrete catch basins with concrete aprons in the bottom of the perimeter ditch.

CONDITION: Good condition.

OBSTRUCTION NOTED: (YES NO) DESCRIBE IF YES:

FOREBAY

NONE MONITOR MAINTENANCE ENGINEER

DESCRIPTION: Located in pond 6

CONDITION:

OUTLET STRUCTURE:

NONE MONITOR MAINTENANCE ENGINEER

DESCRIPTION:

CONDITION:

OBSTRUCTION NOTED: (YES NO) DESCRIBE IF YES:

CONDUIT

NONE MONITOR MAINTENANCE ENGINEER

DESCRIPTION: 6 HDPE pipes convey water from the catch basins to pond 6.

CONDITION: Good condition.

DISCHARGE STRUCTURE:

NONE MONITOR MAINTENANCE ENGINEER

DESCRIPTION:

CONDITION:

Appendix D

CCR Unit Maintenance Recommendations

1. Repair rills east of access road during the growing season.

Continued Monitoring

1. Monitor temporary cover and water diversion berms on top of the east half of the landfill.
2. Monitor leachate drain outlets for plugging.