

2015

**J. M. Stuart Station
Landfill No. 11 Annual Inspection**

EPA Permit to Install: 06-7028

The Dayton Power & Light Company



**Prepared by:
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The Dayton Power & Light Company**

Date: December 21, 2015

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 Engineer registered with the State of Ohio employed by the Dayton Power & Light Company. 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. These periodic inspections indicated issues with slope erosion in limited areas.

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

Landfill No. 11 is in good structural condition. This landfill was receiving waste earlier in the year but had stopped receiving waste for the winter season. Maintenance items were noted in the field inspection report which primarily consist of erosion issues.

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

There were no changes to slopes in the form of slides, sloughs or bulges or other indication of deformation or other indicators of instability. The east fill area had received approximately 200,000 cubic yards of additional waste material during the previous year.

Volume of CCR [§ 257.84(b)(2)(ii)]

Landfill 11 contains approximately 3.6 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.

Visual Inspection of Hydraulic Structures

Landfill No. 11 has a perimeter ditch that conveys storm water, contact water and leachate from the landfill to letdown piping which conveys the water to the inlet areas of Pond 6. Some debris was noted at the inlet to the piping on the east set of letdown pipes and some erosion of the pipe cover material between the perimeter ditch and the pond. CCR material was also observed in the perimeter ditch on the east side of the landfill. Erosion was also observed in the letdown piping cover material.

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
- ❖ 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): Dec. 2015

Weather/Surface Conditions During Inspection: cloudy, damp, temperatures 40 - 50 F

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: Cover is generally adequate with the exception of the south side of the east fill area and an area that was repaired earlier in the year on the east side. This area needs additional topsoil and to be reseeded early in the growing season.

EROSION

DESCRIPTION AND LOCATION:

One significant erosion area has been noted just above the perimeter ditch at the northwest corner of the east area. Another along the east side of the east area was repaired earlier in the year. The south side of the east area has numerous small rills. This area lacks good vegetative cover.

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

	ACTION			
	NONE	MONITOR	MAINTENANCE	ENGINEER
monitor settlement of closed Ash Pond 8 situated below the landfill. CONDITION: Monitoring instruments are in good condition.				
OTHER (rodent burrows, ruts, etc.)				
DESCRIPTION AND LOCATION:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DESCRIPTION AND LOCATION:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DESCRIPTION AND LOCATION:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DESCRIPTION AND LOCATION:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
HYDRAULIC STRUCTURES				
LEACHATE DRAINS	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
DESCRIPTION: Leachate drains outlet approximately every 100 feet along the southern portion of the landfill. CONDITION: Screens at some of the discharge points in the western area are collecting material which appears to primarily be a biological growth. Drains need cleared and inspected annually				
BENCH DRAINS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DESCRIPTION: 24" diameter HDPE pipe with inlets on each bench. CONDITION: Good OBSTRUCTION NOTED: (<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO) DESCRIBE IF YES:				
PERIMETER DITCH	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
DESCRIPTION: Combined leachate, contact and storm water clay lined ditch with grass cover and concrete gutters in the area with leachate drains. CONDITION: Material from the repaired erosion point on the east side did not get cleared from the ditch. Clear perimeter ditch and re-establish vegetative cover. SEEPAGE NOTED: (<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO) DESCRIBE IF YES:				
WATER COLLECTION POND	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DESCRIPTION: The perimeter ditch outlets through HDPE piping into the Pond 6 which is addressed in another report. CONDITION: EROSION NOTED: (<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO) DESCRIBE IF YES:				
INLET	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DESCRIPTION: 2 sets of three concrete catch basins with concrete aprons in the bottom of the perimeter ditch. CONDITION: Good condition. OBSTRUCTION NOTED: (<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO) DESCRIBE IF YES:				
FOREBAY	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DESCRIPTION: Located in pond 6 CONDITION:				
OUTLET STRUCTURE:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DESCRIPTION: CONDITION: OBSTRUCTION NOTED: (<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO) DESCRIBE IF YES:				

ACTION

NONE
 MONITOR
 MAINTENANCE
 ENGINEER

CONDUIT

DESCRIPTION: 6 HDPE pipes convey water from the catch basins to pond 6.
 CONDITION: The eastern set of conveyance pipes shows erosion of the cover material.
 Repair erosion and cover with vegetative material and seed at the beginning of the
 growing season.

NONE
 MONITOR
 MAINTENANCE
 ENGINEER

DISCHARGE STRUCTURE:

DESCRIPTION:
 CONDITION:

Appendix D

CCR Unit Maintenance Recommendations

1. Repair erosion rill on north lower slope of landfill near the east area to west area transition.
2. Repair erosion rills on the south side of the east area, add vegetative cover, and seed.
3. Place additional vegetative cover material and re-seed repaired area on the east side.
4. Clean screens at outlets of leachate pipes.

Continued Monitoring

1. Monitor erosion areas weekly until repairs are complete.
2. Monitor leachate drain outlets for plugging.