

2019 Annual Landfill Inspection Report

Landfill

**Northeastern Plant
Public Service Company of Oklahoma
Oologah, OK**

December 2019

Prepared for: Public Service Company of Oklahoma – Northeastern Plant

Prepared by: American Electric Power Service Corporation

1 Riverside Plaza
Columbus, OH 43215



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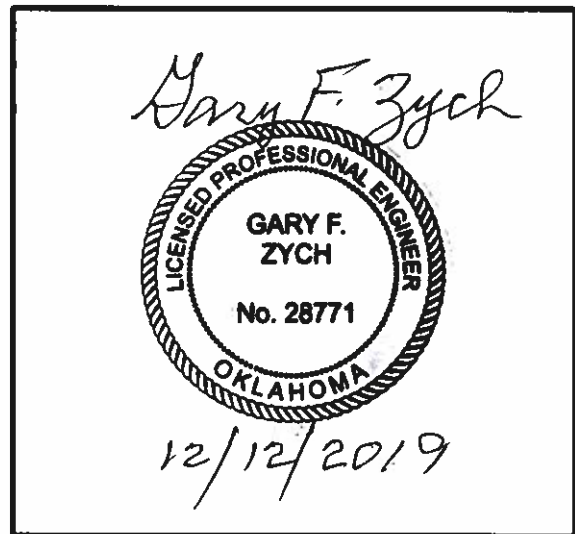
Landfill

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PREPARED BY Gary F. Zych DATE 12/10/2019
Gary F. Zych, P.E.

REVIEWED BY M.A.L. DATE 12/10/2019
Mohammad A. Ajlouni, Ph.D., P.E.

APPROVED BY Gary F. Zych DATE 12/12/2019
Gary F. Zych, P.E.
Manager – AEP Geotechnical Engineering



I certify to the best of my knowledge, information and belief the information contained in this report meets the requirements of OAC § 252:517-13-5.

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Attachments

- Attachment A – Photos
- Attachment B – Inspection Map

1.0 INTRODUCTION

This report was prepared by AEP- Geotechnical Engineering Services (GES) section, in part, to fulfill requirements of OAC 252:517-13-5 and to provide the Northeastern Plant an evaluation of the facility.

Gary Zych, P.E. performed the 2019 inspection of the Landfill at the Northeastern Plant. This report is a summary of the inspection and an assessment of the general condition of the facility. Bryan White, plant staff, was also present during the inspection. The inspection was performed on November 11, 2019. Weather conditions were overcast and the temperature was in the mid 20's (°F) and extremely windy. There was about 1.1 inches of rainfall over the seven days prior to the inspection.

2.0 DESCRIPTION OF LANDFILL

The overall features of the landfill were categorized into the following components as a means of organizing the inspection and reporting:

- Active Landfill Disposal Area (Cell 2)
- Inactive Landfill Areas (Cells 1,3 and 4)
- Leachate Collection Pond
- Storm Water Drainage Ditches
- Perimeter Berm

These features are shown on Figure 1 of Attachment B.

The Active Landfill Disposal Area (Cell 2) is currently where waste is being placed. There were no active disposal operations at the time of the inspection.

Inactive Landfill Areas (Cells 1, 3 and 4) consists for the remaining portions of the landfill. The intermediate liner system has a 2-foot thick protective cover. Portions of the inactive area also has a temporary geomembrane cover (rainflap) to prevent infiltration.

3.0 REVIEW OF AVAILABLE INFORMATION (252:517-13-5 (b)(1)(A))

A review of available information regarding the status and condition of the Landfill has been conducted. This information includes files available in the operating record, such as design and construction information, previous 7-day inspection reports, and previous annual inspections. Based on the review of the data there were no signs of actual or potential structural weakness or adverse conditions.

4.0 INSPECTION (252:517-13-5 (b)(1)(B))

4.1 CHANGES IN GEOMETRY SINCE LAST INSPECTION (252:517-13-5(b)(2)(A))

No modifications have been made to the geometry of the Landfill since the last annual inspection. The geometry of the landfill has remained essentially unchanged, expect for the change in topography of the active disposal area.

4.2 VOLUME (252:517-13-5(b)(2)(B))

The total volume of CCR disposed in the landfill as of the inspection date is estimated to be 1,671,032 cubic yards (1,660,000 in 2018 + 11,032 in 2019).

4.3 DEFINITIONS OF VISUAL OBSERVATIONS AND DEFICIENCIES

This summary of the visual observations uses terms to describe the general appearance or condition of an observed item, activity or structure. The meaning of these terms is as follows:

- Good:** A condition or activity that is generally better or slightly better than what is minimally expected or anticipated from a design or maintenance point of view.
- Fair/Satisfactory:** A condition or activity that generally meets what is minimally expected or anticipated from a design or maintenance point of view.
- Poor:** A condition or activity that is generally below what is minimally expected or anticipated from a design or maintenance point of view.
- Minor:** A reference to an observed item (e.g., erosion, seepage, vegetation, etc.) where the current maintenance condition is below what is normal or desired, but which is not currently causing concern from a structure safety or stability point of view.
- Significant:** A reference to an observed item (e.g. erosion, seepage, vegetation, etc.) where the current maintenance program has neglected to improve the condition. Usually conditions that have been identified in the previous inspections, but have not been corrected.
- Excessive:** A reference to an observed item (e.g., erosion, seepage, vegetation, etc.) where the current maintenance condition is above or worse than what is normal or desired, and which may have affected the ability of the observer to properly evaluate the structure or particular area being observed or which may be a concern from a structure safety or stability point of view.

This document also uses the definition of a “deficiency” as referenced in the CCR rule section §257.84(b)(5) Inspection Requirements for CCR Landfills. This definition has been assembled using the CCR rule preamble as well as guidance from MSHA, “Qualifications for Impoundment Inspection” CI-31, 2004. These guidance documents further elaborate on the definition of deficiency. Items not defined by deficiency are considered maintenance or items to be monitored.

A “deficiency” is some evidence that a landfill has developed a problem that could impact the structural integrity of the landfill. There are four general categories of deficiencies. These four categories are described below:

1. **Uncontrolled Seepage (Leachate Outbreak)**
Leachate outbreak is the uncontrolled release of leachate from the landfill.
2. **Displacement of the Embankment**
Displacement of the embankment is large scale movement of part of the dam. Common signs of displacement are cracks, scraps, bulges, depressions, sinkholes and slides.
3. **Blockage of Control Features**
Blockage of Control Features is the restriction of flow at spillways, decant or pipe spillways, or drains.

4. Erosion

Erosion is the gradual movement of surface material by water, wind or ice. Erosion is considered a deficiency when it is more than a minor routine maintenance item.

4.4 VISUAL INSPECTION (252:517-13-5(b)(1)(B))

A visual inspection of the Landfill was conducted to identify any signs of distress or malfunction of the landfill and appurtenant structures. Specific items inspected included all structural elements of the landfill perimeter berms, temporary and final covers, drainage features, leachate ponds, open cells, and appurtenances such as chimney drains etc.

Overall, the facility is in good condition. The landfill is functioning as intended with no signs of potential structural weakness or conditions that are disrupting to the safe operation of the landfill. Inspection photos are included in Attachment A. Additional pictures taken during the inspection can be made available to the Owner upon request.

Active Landfill Area (Cell 2)

1. Cell 2 is the active disposal area (photo 1). No ponding of water was observed on the surface. The material in the Cell is separated from the inactive areas by a low splitter berm.
2. There was no erosion of the CCR material in the active area. The height of the fill above the intermediate liner is relatively small (< 12 feet).
3. No slopes or other areas of the active landfill have received permanent cover.

Inactive Landfill Disposal Areas

4. The surface of the inactive disposal areas is the protective cover material over the intermediate liner system. There were no observations of erosion or other unsatisfactory conditions of the areas. Photo 2 shows the rainflap cover over portion of the inactive disposal area.
5. There was no ponding of water on the surface of the inactive areas. The areas drain to the perimeter stormwater channels. The channels flow into Basin C, which is pumped to the permitted outfall.
6. The west end of the landfill has exposed geomembrane as a temporary cover over the slopes of the CCR material. No damage to the temporary cover was observed. (photo 3)
7. The exterior slopes of the north containment berm were covered with high vegetative growth (photos 4-5).

Leachate Collection Pond

8. The pond was full due to the recent precipitation events over the past several weeks prior to the inspection (photo 6). The outlet of the two leachate pipes that discharge into the pond were not visible.
9. The plant has switched to a manual pumping system instead of the existing leachate pumping system. Generally, the leachate is used for dust control and compaction water for the CCR material placed in the active area.

Storm Water Drainage Ditches

10. The perimeter ditches were in good condition. The ditches are currently lined with exposed geomembrane. There were some local areas of very shallow ponding due to either minor sediment or small wrinkles in the geomembrane.
11. No damage to the geomembrane was observed during the inspection.
12. The exposed geomembrane liner in Basin C was observed to be in good condition (photos 8-9)

South Perimeter Berm

13. The crest of the perimeter was in fair condition (photo 7). There were a few minor ruts in the surface of aggregate road surface.
14. The exterior slope of the berm is steep and heavily vegetated. The natural riverbank slope is exposed rock.

4.5 CHANGES THAT EFFECT STABILITY OR OPERATION (252:517-13-5(b)(2)(D))

Based on interviews with plant personnel and field observations there were no changes to the Landfill since the last annual inspection that would affect the stability of the Landfill.

5.0 SUMMARY OF FINDINGS

5.1 GENERAL OBSERVATIONS

The following general observations were identified during the visual inspection:

- 1) In general, the landfill is functioning as intended. All areas of the facility are in good condition.
- 2) The Plant is performing regular maintenance and inspections as required.

5.2 MAINTENANCE ITEMS

The following specific maintenance items were identified during the visual inspection.

- 1) Mow the exterior slope of the north containment berm to control woody vegetation.

5.3 ITEMS TO MONITOR

No specific issues or areas were identified during the visual inspection as items to be monitored.

5.4 DEFICIENCIES (252:517-13-5(b)(5))

There were no signs of structural weakness or disruptive conditions that were observed at the time of the inspection that would require additional investigation or remedial action. There were no deficiencies noted during this inspection or during any of the periodic 7-day inspections. A deficiency is defined as either:

- 1) Uncontrolled seepage (leachate outbreak),
- 2) Displacement of the embankment,
- 3) Significant blockage of drainage features or drain pipes, or
- 4) Erosion, more than minor maintenance.

If any of these conditions occur before the next annual inspection contact AEP Geotechnical Engineering immediately.

ATTACHMENT A

Photos



Photo #1 – active disposal Cell 2



Photo #2 – Rainflap cover – Cell 1



Photo #3 – geomembrane cover of west slope



Photo #4 – exterior slope North containment berm-looking west



Photo #5 – exterior slope of North containment berm, looking east



Photo #6 – Leachate collection pond – almost full



Photo #7 – crest of containment berm along the river



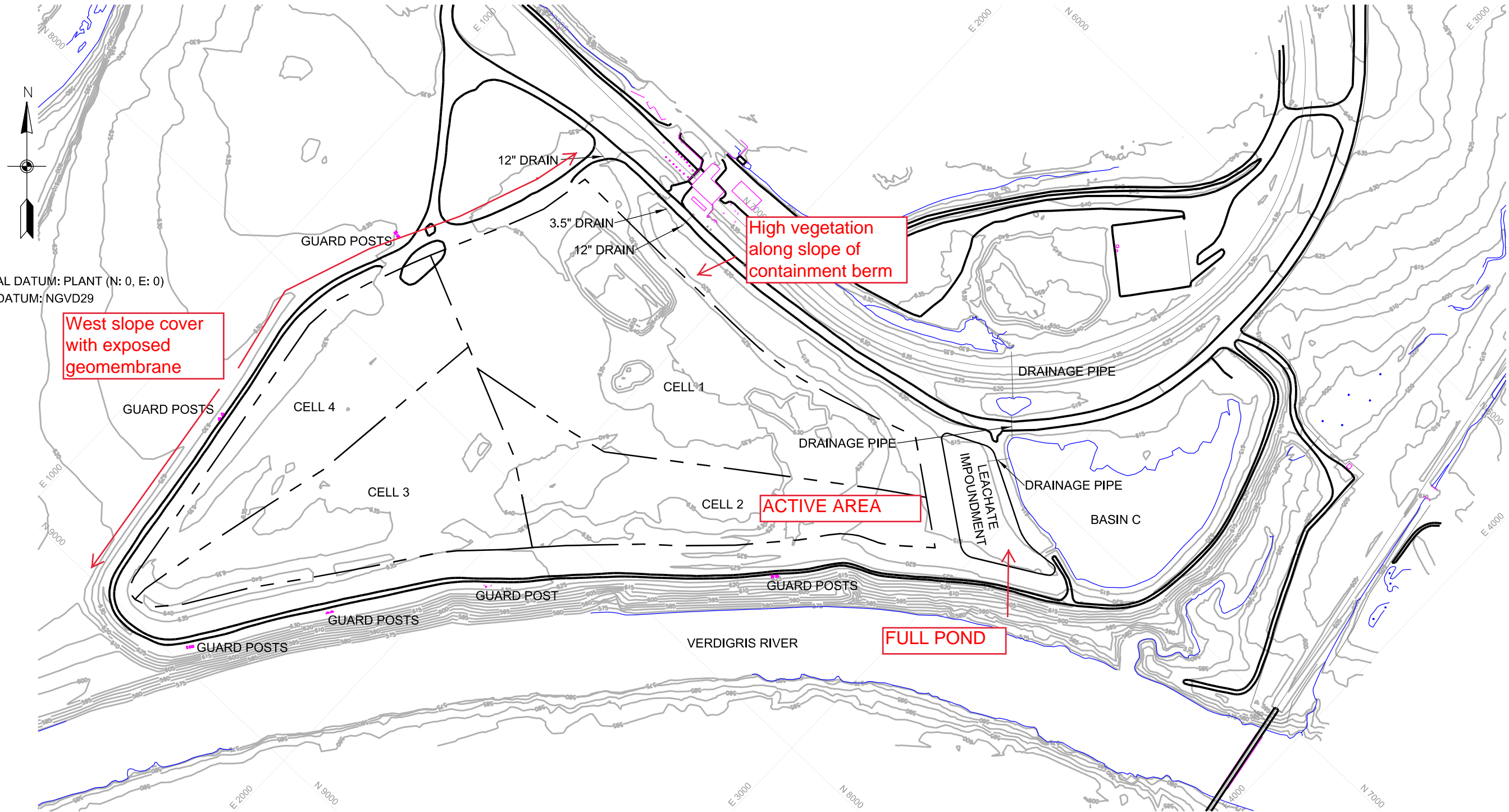
Photo #8 – Interior slope of non-contact water pond (Basin C)



Photo #9 – outlet of south non-contact water culverts into Basin C

ATTACHMENT B

Inspection Map



HORIZONTAL DATUM: PLANT (N: 0, E: 0)
 VERTICAL DATUM: NGVD29

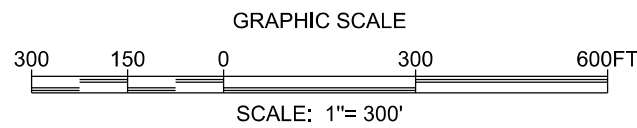
West slope cover with exposed geomembrane

High vegetation along slope of containment berm

ACTIVE AREA

FULL POND

Inspection Date: 11/11/2019



DRN BY:	GEOTECHNICAL	 AEP SERVICE CORP. 1 RIVERSIDE PLAZA COLUMBUS, OH 43215
DATE:	PUBLIC SERVICE COMPANY OF OKLAHOMA NORTHEASTERN PLANT	
SCALE: 1"=300'	LANDFILL FIGURE 1	