2019 Annual Landfill Inspection Report

Landfill

Flint Creek Plant

Southwestern Electric Power Company

Gentry, AK

December 2019

Prepared for: Southwestern Electric Power Company – Flint Creek Plant

Prepared by: American Electric Power Service Corporation

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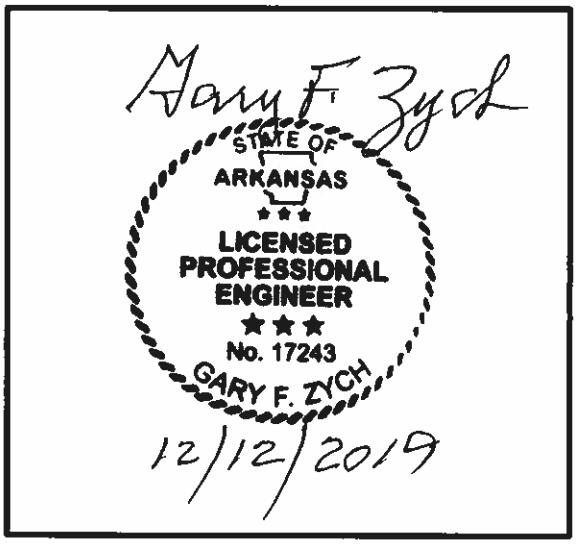

I certify to the best of my knowledge, information and belief the information contained in this report meets the requirements of 40 CFR § 257.84(b).

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1.0 INTRODUCTION

This report was prepared by AEP- Geotechnical Engineering Services (GES) section, in part, to fulfill requirements of 40 CFR 257.84 and to provide the Flint Creek Plant an evaluation of the facility.

Gary Zych, P.E. performed the 2019 inspection of the Landfill at the Flint Creek Plant. This report is a summary of the inspection and an assessment of the general condition of the facility. Greg Carter, P.E., of AEP Regional Engineering also participated in the inspection. The inspection was performed on November 14, 2019. Weather conditions were sunny and the temperature was in the low 40's (°F). There was 1.65 inches of recorded rainfall over the seven days prior to the inspection. Of that amount, about 1.12 inches occurred on November 7 and 0.53 inches occurred the two 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
- Inactive Landfill Areas
- Leachate Collection/Contact Water Pond
- Storm Water Drainage Ditches
- Closed Areas

These features are shown on the Figure 1.

The Active Landfill Disposal Area is currently where waste is being placed.

Inactive Landfill Areas consists for the remaining portions of the landfill. The intermediate geomembrane liner is exposed until the areas are required for disposal capacity.

3.0 REVIEW OF AVAILABLE INFORMATION (257.84(b)(1)(i))

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

4.0 INSPECTION (257.84(b)(1)(ii))

4.1 CHANGES IN GEOMETRY SINCE LAST INSPECTION (257.84(b)(2)(i))

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, except for the change in topography of the active disposal area.

4.2 VOLUME (257.84(b)(2)(ii))

The total volume of CCR disposed at the landfill as of the inspection date of was estimated to be 1,525,328 (1,494,267 last inspection + 31,061 to date) cubic yards.

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 landfill or perimeter berm. 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, culverts, or leachate pipes 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 (257.84(b)(1)(ii))

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, final covers, drainage features, leachate/contact water ponds, and the open cell.

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

Active Landfill Area

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. No disposal activities were taking place at the time of the inspection (Photos 1-3).
2. There was no erosion of the CCR material in the active area.
3. No slopes of the Active Area have or require any temporary cover at the time of the inspection.
4. Stormwater runoff from this area is directed into the Contact Water pond via the concrete lined ditches.

Inactive Landfill Disposal Areas

5. The exposed geomembrane was observed only from the perimeter of the cells. There was no apparent significant damage to the exposed geomembrane based on the observation from the perimeter. A complete walk down of the area is recommended prior to placing CCR to ensure the integrity of the liner. (Photos 4 & 5)
6. There was no ponding of water on the surface of the inactive areas. The areas drain to the perimeter stormwater channels.

Leachate Collection Pond

7. There is one active leachate collection pipe that flows into the pond (photo 15). The pipe was visible and only a small volume of leachate (~ 1 gpm) was flowing out of the pipes. The leachate effluent appeared clear.
8. The pond was containing a very low volume of water at the time of this inspection. The protective cover of the interior slopes appeared to be in good condition (photo 16).
9. The contact water portion of the pond complex was full but not at the level to discharge. There was a noticeable sediment delta forming at the north inlet area. There was no such delta at the south inlet area.

10. The concrete protective cover of the interior slopes of the contact water portion was in good condition (photos 17 & 18). There was no misalignment of the concrete joints. The condition of the caulking material at the joints was good.

Storm Water Drainage Ditches

11. The perimeter ditches were in good condition. The ditches are grassed lined and no scour or erosion was observed during the inspection.
12. There are three stormwater letdown channels on the slopes of the landfill (photo 6). These are fabriform-lined and there were no observed issues with the channel. The channels discharge into a riprap –lined channel to dissipate energy before entering the receiving drainage features.. This was some minor accumulation of sediment at the toe of the northeast letdown as noted in the last inspection (photo 7).
13. The minor erosion and movement of the riprap noted in the last inspection below the letdown channel on the southwest corner of the landfill has been repaired. High flows continue to displace riprap and will continue to expose and allow undercutting of the fabriform (photo 19). Undercutting of the fabriform at the toe did not appear to have significantly changed from the last inspection.

Perimeter Berm

14. The perimeter berm was in fair condition. There was good vegetative cover over the entire exterior slopes of the berm. There was no erosion or displacement of the berm observed during the inspection.
15. The south and east exterior slopes are fairly steep but appeared stable. An erosion gully has started to form on the east berm above monitoring well B-4 (photo 8)
16. The vegetation is well established. However, the vegetation is high since the area was only mowed once during the season.
17. There was one rodent hole observed near the crest of the west perimeter berm (photo 14). The location (shown on Figure 1) is near the southeast corner of the west sediment pond, in line with the riprap spillway section from the pond.

Closed Areas/Slopes

18. Portions of the landfill slopes have received final cover and certified as closed. The condition of these slopes was good. There were no observed erosion gullies, sloughs, or other signs of movement of these areas. All areas had adequate vegetative cover. The vegetation is well established but the grass was high since the area was only mowed once during the season. (photos 9-13)

4.5 CHANGES THAT EFFECT STABILITY OR OPERATION (257.84(b)(2)(iv))

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 inspections as required.

5.2 MAINTENANCE ITEMS

The following specific maintenance items were identified during this inspection.

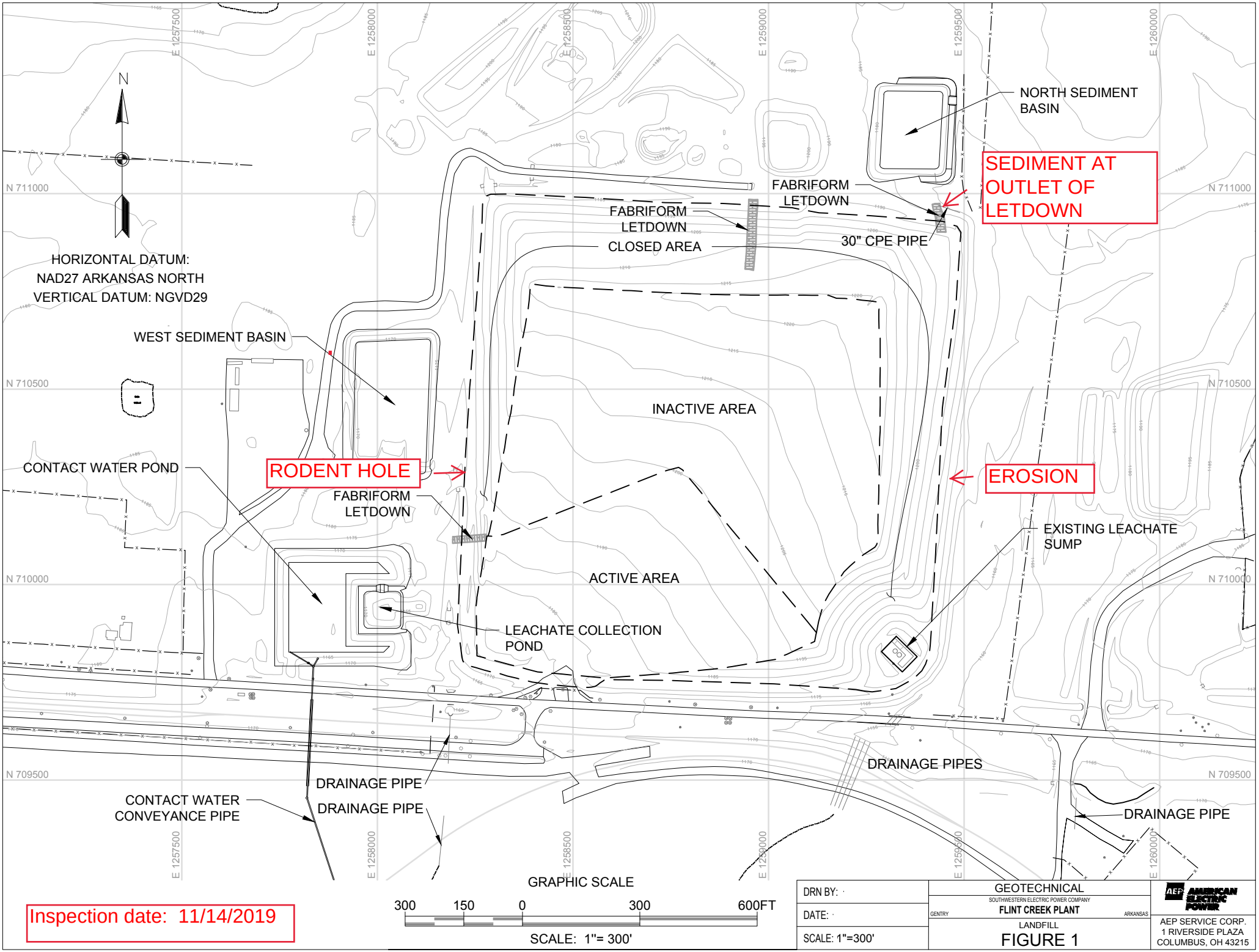
1) Remove sediment from toe of northeast letdown.
2) All grassed areas should be mowed at least 2-3 times during the year to facilitate inspections and keep woody vegetation from establishing.
3) Repair rodent hole noted on west berm and any others noted during the weekly inspections.

5.3 ITEMS TO MONITOR

Continue to monitor the riprap and scour at the toe of the west letdown.

5.4 DEFICIENCIES (257.84(b)(2)(iii))

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 inspection.


N
HORIZONTAL DATUM:
NAD27 ARKANSAS NORTH
VERTICAL DATUM: NGVD29
NORTH SEDIMENT BASIN
SEDIMENT AT OUTLET OF LETDOWN
FABRIFORM LETDOWN
FABRIFORM LETDOWN
CLOSED AREA
30" CPE PIPE
WEST SEDIMENT BASIN
INACTIVE AREA
CONTACT WATER POND
RODENT HOLE
FABRIFORM LETDOWN
EROSION
EXISTING LEACHATE SUMP
ACTIVE AREA
LEACHATE COLLECTION POND
DRAINAGE PIPES
DRAINAGE PIPE
CONTACT WATER CONVEYANCE PIPE
DRAINAGE PIPE
DRAINAGE PIPE
N 711000
N 710500
N 710000
N 709500
E 1257500
E 1258000
E 1258500
E 1259000
E 1259500
E 1260000
GRAPHIC SCALE
300 150 0 300 600FT
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Inspection date: 11/14/2019
DRN BY:
DATE:
SCALE: 1"=300'
GEOTECHNICAL
SOUTHWESTERN ELECTRIC POWER COMPANY
GENTRY
FLINT CREEK PLANT
ARKANSAS
LANDFILL
FIGURE 1
AEP AMERICAN ELECTRIC POWER
AEP SERVICE CORP.
1 RIVERSIDE PLAZA
COLUMBUS, OH 43215

ATTACHMENT A

Photographs

Photo #1 – slope of active area

Photo #2 – active area

Photo #3 – slope of active area

Photo #4 – exposed liner over inactive areas

Photo #5 – exposed liner over inactive areas

Photo #6 – North fabriform letdown channel

Photo #7 – sediment deposit at outlet of northeast letdown

Photo #8 – erosion gully on east containment berm

Photo #9 – final cover –east slope looking south

Photo #10– final cover –east slope looking north

Photo #11 – final cover –west slope looking north

Photo #12 – final cover –north slope looking east

Photo #13 – final cover –north slope looking west

Photo #14 – rodent hole on west containment berm

Photo #15 – leachate inlet pipe

Photo #16 – leachate pond

Photo #17 – North end of contact water pond

Photo #18– South end of contact water pond

Photo #19 – undermining of SW letdown channel