2019 Annual Landfill Inspection Report

Landfill

Rockport Plant

Indiana Michigan Power Company

Rockport, Indiana

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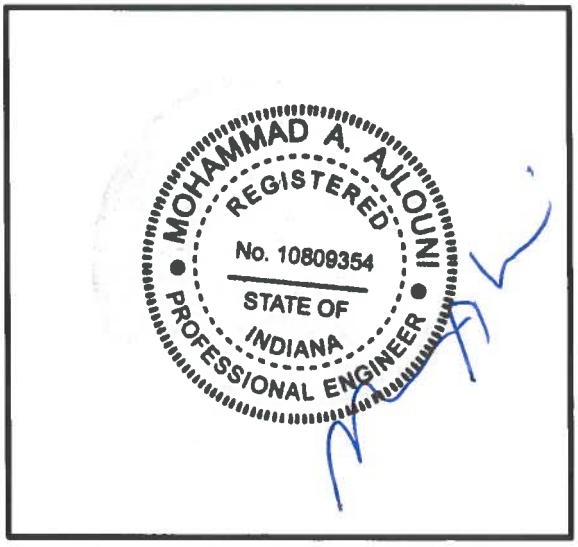

I certify to the best of my knowledge, information and belief the information contained in this report meets the requirements of 40 CFR § 257.84(b).

Table of Contents

Attachments

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 Rockport Plant an evaluation of the facility.

Mr. Mohammad Ajlouni performed the 2019 inspection of the Landfill at the Rockport Plant. This report is a summary of the inspection and an assessment of the general condition of the facility. Mr. Mitch Montgomery, the landfill supervisor for the Plant, was the facility contact. The inspection was performed on August 28, 2019. Weather conditions were clear and the temperature was in the mid 70's (°F) in the morning to the upper 70s F in the afternoon, with good visibility. There was a 0.9" rainfall recorded 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:

- Closed Landfill Area
- Active Landfill Disposal Areas (Cells 1B, 2, and 3)
- 2015 Landfill Construction Area (Cell 1A)
- 2016 Landfill Construction Area (Cell 5 and 4A)
- Inactive Landfill Areas (Cells 4B, 6, and 7)
- Leachate Ponds
- Storm Water Drainage Ditches

These features, including the approximate limits of each area, are shown on the Figure 1 of Attachment B.

The Closed Landfill Area is located on the north and east sides of the landfill as shown on Figure 1. This area of the landfill was constructed between 1985 and 1987 and was used for disposal of Type II ash. The area was closed and final cover was placed between 2000 and 2007. The final cover consists of twenty-four (24) inch thick compacted clay cover and a six (6) inch thick topsoil cover to support vegetation.

The Active Landfill Disposal Areas (Cells 1B, 2 and 3) is currently where waste is being placed. The constructions of these lined cells were completed in 2015 in order to dispose of the Type I Dry Sorbent Injection Ash.

The 2015 Landfill Construction Area (Cell 1A) was completed in 2015. A portion of this cell was constructed over the slope of the previously filled Type II landfill area and a perimeter berm constructed along the southeastern edge of the cell is tied into the existing landfill cap. Intermediate cover over the area consisting of soil and vegetative cover was placed over the area in 2016.

The 2016 Landfill Construction Area (Cell 5 and 4A) was completed in 2016. A portion of this cell was built over the slope of the previously filled Type II landfill area and a perimeter berm construction along the eastern edge of Cell 5 is tied into the existing landfill cap. A soil and vegetative cover was placed over the entire area in 2017.

Inactive Landfill Areas (Cell 4B, 6, and 7) consist of a Perimeter berm and Type II soil liner construction that was completed for these cells during the period from 2012 to 2014 and the area is reserved for future composite liner construction. A layer of intermediate cover soils is in place over part of the Type II soil liner area and is generally vegetated.

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 2018 annual inspection. The geometry of the landfill has remained essential unchanged, except for the changes in topography of the active landfill area due to placement of ash.

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

The total volume of ash disposed at the landfill up to the 2019 inspection date of August 28, 2019 was estimated to be 1,656,432 tons of Type I ash and 5,647,448 tons of Type II ash.

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 it is normal or desired, or which may have affected the ability of the observer to properly evaluate the structure or particular area of interest 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 identified as a deficiency are considered routine maintenance items 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, scarps, 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 (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, 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 which 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 upon request. A map presenting locations of the inspection observations is included in Attachment B.

Closed Landfill Areas

1. The closed landfill area was observed to have a thick grass cover over the entire capped area that had recently been mowed. Drainage and runoff from the closed area was observed to be working as designed. There were no signs of settlement, signs of movement or distress of the landfill area. Access roads on top and adjacent to the landfill area were in good condition. The closed landfill area was in good condition and well maintained (Photo #1).

Active Landfill Disposal Areas (Cell 1B, 2 & 3)

2. During the inspection, ash was being placed in the active disposal areas and the ash was being compacted as it was placed. The chimney drains were functioning as designed and there was no pooling of water around the drains (Photo #2 and Photo #3).
3. On the perimeter dike to the south of Cell 2 and 3 minor thinning of the vegetation cover was observed. The thinning of the vegetation was only on the surface and no erosion was noted below the vegetation.

2015 Construction Area (Cell 1A)

4. Cell 1A was well vegetated and was recently mowed. There were no signs of depressions, cracks, sloughs or other signs of distress. In general the area was in good condition.
5. There are some areas of minor thinning of the vegetation cover. The thinning was only of the surface vegetation and no erosion was observed (Photo #4).

2016 Construction Area (Cell 4A & 5)

6. The surface of Cell 4A and 5 has a soil and vegetative layer which was placed as protective cover in 2017. In general the surface was in fair condition with minor thinning of the vegetation cover was observed (Photo #5 and Photo #6).

Inactive Landfill Areas (Cell 4B, 6 & 7)

7. The inactive landfill cells 4B, 6 and 7 were in good condition. The vegetative cover was well established and in good condition. The perimeter drainage culverts appeared to be functioning as designed. The general area was in good condition and well maintained with the area being mowed recently.

Leachate Ponds

8. The North Pond was generally in good condition. At the time of the inspection both cells were filled. The concrete lined cell did not appear to have any signs of damage, cracks or spalling. There were no signs of blockage of the inlet and outlet piping. The fence surrounding the leachate pond was in good condition (Photo #7).
9. The West Pond exposed lined portion was generally in good condition. At the time of the inspection the West Pond exposed lined portion was filled. The exposed lined section was in good condition with no signs of tears or holes. The inlet and outlet pipes were clear with no blockage (Photo #8).
10. The West pond concrete lined portion was being used for leachate effluent treatment during the inspection to reduce sulfate in the leachate. The concrete lined section in general is in good condition with no signs of damage (Photo #9).
11. The 002 Pond was generally in good condition. At the time of the inspection the 002 pond was filled. The embankment structure of the pond was in good conditions. The inlet and outlet pipes were clear with no blockage (Photo #10).

Storm Water Drainage Ditches

12. The perimeter ditches to the West and South were in good condition with no signs of erosion or blockage and appeared to be functioning as designed.

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 and the active cells, inactive cells, closed areas, leachate ponds and ditches are in good condition. The Plant is performing regular maintenance and inspections as required. Maintenance items have been noted and are described in Section 5.2.

5.2.

5.2 MAINTENANCE ITEMS

The following maintenance items were identified during the visual inspection, see inspection map for locations. Contact GES for specific recommendations regarding repairs:

1) Reseed thinning vegetation on the external south slopes of the Active Landfill Area (Photo #5 & #6).

5.3 ITEMS TO MONITOR

1) None

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 inspections. A deficiency is defined as either 1) uncontrolled seepage (leachate outbreak), 2) displacement of the embankment, 3) blockage of control features, 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	
Closed Landfill Areas – Closed area observed to be in good condition.	
Photo # 2	
Active Landfill Disposal Areas – Good overall condition for internal waste surfaces and drainage features.	
Photo # 3	
Active Landfill Disposal Areas – Good overall condition for internal waste surfaces and drainage features.	

Photo # 4	
2015 Construction Area – Good overall condition, east of cell 1.	

Photo # 5	
2015 Construction Area – Minor erosion of the perimeter dike south of cell 5.	

Photo # 6	
2015 Construction Area – Minor erosion of the perimeter dike south of cell 5.	

Photo # 7	
North Leachate pond (exposed liner portion).	

Photo # 8	
West Leachate pond – West pond exposed liner portion.	

Photo # 9	
West Leachate pond (concrete lined portion) – Concrete exposed portion being used to remove mineral precipitation from sulfate reduction.	

Photo # 10	
002 Pond –Northeast corner of pond.	

ATTACHMENT B

Inspection Map

Figure 1. Photo Location