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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Attachments
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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 Mitchell Plant an evaluation of the facility.

Mr. Mohammad Ajlouni, P.E. performed the 2018 inspection of the Landfill at the Mitchell Plant. This report is a summary of the inspection and an assessment of the general condition of the facility. Mr. Dennis Henderson, the landfill supervisor for the Plant, was the facility contact and was present during the inspection. The inspection was performed on June 28, 2018. Weather conditions were sunny and the temperature was in the upper 70’s (°F). There was 3.51 inches of rainfall in the area over the seven days prior to the inspection. Portions of the landfill had been recently mowed.

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 Areas (Phases 1 & 2)
- Clay Berm
- Leachate Collection System (Leachate Sump & Lift Station, and Pond)
- Storm Water Control Features (South Pond, South Pond Forebay and West Pond)

These features, including the approximate limits of each area, are shown on the Figure 1 of Attachment B. Selected photographs taken during the inspection and used to illustrate the visual observations presented in the report are presented in Attachment A. Additional inspection photos can be made available to the Plant upon request.

In general, the Mitchell Landfill is a lined valley fill landfill project with a leachate collection system. At the completion of the project, leachate and runoff will flow to the south end (downhill) of the landfill area. Leachate is then pumped uphill to a detached leachate collection pond on top of an adjacent ridgeline.

Phases 1 and 2 are located near the northern limits of the site and are actively receiving CCR materials. Chimney drains constructed out of bottom ash material were observed inside the Phase 1 area. These bottom ash chimney drains are connected to the leachate collection system to handle contact water runoff into the landfill area. A temporary clay berm exists immediately to the south of Phases 1 and 2.

Leachate collection pipes for Phase 1 and Phase 2 flow by gravity to the south and discharge into a concrete sump. Leachate water is then pumped to the leachate collection pond for recirculation back to the plant.

Non-contact storm water from the clay berm and to the south is directed to the south sedimentation pond. Non-contact storm water from the north end of the site is directed to the west sedimentation pond.

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 2017 annual inspection, except for normal filling operations. The geometry of the landfill has remained essential unchanged.

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

The total volume of CCR material disposed at the landfill through June of 2018 is summarized in the table below. This is based on information from previous annual inspection reports and information received from Mitchell Plant personnel.

<table>
<thead>
<tr>
<th>CCR Description</th>
<th>CCR Quantities to Mitchell Landfill (tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2014</td>
</tr>
<tr>
<td>Fly Ash</td>
<td>244,944</td>
</tr>
<tr>
<td>Bottom Ash</td>
<td>*</td>
</tr>
<tr>
<td>Gypsum</td>
<td>13,278</td>
</tr>
<tr>
<td>Combined</td>
<td>258,222</td>
</tr>
</tbody>
</table>

\(^1\) = From January 2018 through June 2018.

\(*\) = Bottom ash used for construction and not considered part of disposal quantities.

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 (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, CCR material placement, drainage features, storm water ponds/dams, leachate ponds, open cells, and appurtenances such as chimney drains and underdrains.

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 to the owner upon request. A map depicting the locations of the inspection observations is included in Attachment B.

**Phase 1 Area**

1. The Phase 1 Area is actively receiving CCR material for disposal. CCR material is dumped, spread out with a dozer and compacted with a smooth drummed roller. Chimney drains consisting of bottom ash piles were observed to be scattered around the Phase 1 area. There was no evidence of standing water, erosion, slope instabilities or uncontrolled seepage.
Phase 2 Area

1. During the inspection, parts of Phase 2 area was actively receiving CCR materials. CCR material is dumped, spread out with a dozer and compacted with a smooth drummed roller. 6-inch deep erosion rills were noted along the northern slope of the temporary cover in the Phase 2 area. Plant personnel indicate that erosion of this temporary cover is an on-going maintenance issue and usually addressed after rain events. There was no evidence of standing water, slope instabilities or uncontrolled seepage.

Clay Berm

1. The Clay Berm located immediately to the south of Phase 1 and Phase 2 Areas was observed to have an erosion gully about 1 to 2 feet deep in the left groin area at the recently constructed area. The filter fabric material underneath the riprap was exposed and observed to be torn/damaged.
2. There were several 3 to 6 inch deep erosion rills noted on the clay berm, near the center of the clay berm. An erosion rill about 12-inches at maximum depth was observed on the dirt road with runs along the western edge of the clay berm.
3. The top 10 to 15 feet of the clay berm had been recently hydro-seeded. The grass cover had not been established yet.
4. There was no evidence of uncontrolled leachate, slope instability or ponding water on the clay berm area.

Leachate Collection System

1. The leachate collection pipes are exposed at the ground surface in the area between the toe of the clay berm and the leachate lift station. There was no evidence of leachate leaking through defects or imperfections in the leachate collection pipes in this area where the pipes were exposed for visual inspection.
2. The leachate lift station was observed to be in good condition. The pumps and backup power generator appeared to be in good working order.
3. The water level in the leachate sump was about 5 feet below the elevation of the overflow structure.

Leachate Collection Pond

1. The water level in the leachate collection pond was about El. 1224 feet above mean sea level.
2. The geomembrane liner at the leachate pond appeared to be in good condition, with no evidence of tears, rips, holes or signs of flotation.
3. The overflow pipe at the leachate collection pond was observed to be unobstructed.

South Sedimentation Pond

1. The water level in the south pond was about El. 1030 feet above mean sea level.
2. The area of previous sloughing/instability on the east abutment, almost even with the crest of the south sedimentation pond embankment appeared stable with no signs of slope movement or instability.
3. A 5-foot diameter, soft, damp area was observed near the middle of the south sedimentation pond embankment, about 1/3 of the way down the slope from the crest. There was no visible water discharging from this damp area.
4. The principal spillway riser appeared unobstructed. The trashrack and anti-vortex plate were in good condition and securely fastened to the riser structure.
5. There was evidence of displaced riprap in the spillway between the south pond forebay and the south pond. It appeared that the riprap armoring has been washed downstream, into the south pond.

6. Some minor vegetation was starting to grow amongst the riprap on the upstream slope of the south pond.

7. The principal spillway outlet was observed to be in good condition. Some brush vegetation was becoming established in the riprap around the principal spillway outlet area.

8. There are two, 12-inch-diameter perforated HDPE underdrain pipes which outlet at the downstream toe of the south pond dam. Both of these pipes were observed to be dry at the time of the inspection, and the outlets of both pipes were unobstructed. A section of corrugated plastic pipe had been secured to the HDPE pipe with screws to extend the outlet of these underdrain pipes.

**West Sedimentation Pond**

1. The pool level in the west pond about 2.5 feet below the top of the principal spillway riser. The trashrack and anti-vortex plate were in good condition and securely fastened to the principal spillway riser.

2. The grass cover on the downstream slope of the west pond embankment was observed to be in satisfactory conditions.

3. The emergency spillway of the west pond was observed to be unobstructed.

4. It should be noted that the riprap armoring for the west pond emergency spillway does not protect the downstream slope of the embankment, however the height of the embankment in this area does not appear to be more than 5 feet.

5. A surface drainage culvert is extended down the sloping natural ground to the waterline, on the eastern edge of the pond.

**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 landfill cells, leachate pipes and collection pond, and storm water controls are in good condition. The Plant is performing regular maintenance and inspections as required.

**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) Remove shrubs and mow the lower part the clay berm during normal maintenance at the landfill facility.

2) Repair the erosion rills on the surface of the clay berm and the access road on the clay berm. After repairing the erosion rills on the vegetated portion of the clay berm, seed and mulch all
disturbed areas to protect the area from further erosion.

3) Continue to repair the erosion rills in the temporary ash cover on the north slope of Phase 2 area of the landfill after rain events.

4) Periodically remove the vegetation growing in the riprap-lined areas on the upstream slope and downstream toe area of the south pond dam.

5) Continue to perform routine maintenance on the leachate pump system components and remove any debris accumulation (leaf litter, sticks, etc.) as necessary for proper operation of the pumping system.

5.3 ITEMS TO MONITOR

The following items were identified during the visual inspection as items to be monitored, see inspection map for locations:

1) Monitor the recently added fill material at the top of the clay berm for any signs of erosion until the grass cover becomes established.

2) Monitor the soft, damp area on the downstream slope of the south pond, about 1/3 of the down the slope, near the center of the embankment for any signs of changing seepage conditions, muddy seepage, or slope instabilities.

3) Monitor the area of the former slope instability on the east abutment of the south pond embankment for any signs of reoccurring slope instability.

4) Continue to the monitor the sediment accumulation in the storm water sedimentation ponds (including the south pond forebay) and plan to periodically remove the sediments as necessary to retain the design storage capacity of the ponds.

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
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
<table>
<thead>
<tr>
<th>Photograph 1: View of the erosion rills on the protective cover material on the north and east face of the Phase 2 area.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photograph 2: View of the erosion rills on the protective cover material on the north and east face of the Phase 2 area.</td>
</tr>
<tr>
<td>Photograph 3: Overview of the landfill area, facing east.</td>
</tr>
<tr>
<td>Photograph 4: Overview of the clay berm, facing west. The bare soils define the recently placed clay material.</td>
</tr>
<tr>
<td>---</td>
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<tr>
<td>Photograph 5: View of the erosion occurring in the eastern groin of the clay berm area and the limits of the new construction.</td>
</tr>
<tr>
<td>Photograph 6: View of the erosion rill on the dirt access road on the clay berm.</td>
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<tr>
<td>Photograph 7:</td>
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<tr>
<td>----------------</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Photograph 8:</th>
<th>View of the leachate collection sump. The leachate collection pipes are circled in red, and the leachate pumps are indicated by the yellow arrows.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Photograph 9:</th>
<th>View of the displaced riprap in the open channel spillway between the south pond forebay and the south pond.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photograph 10:</td>
<td>View of the upstream slope of the south pond dam.</td>
</tr>
<tr>
<td>Photograph 11:</td>
<td>View of the downstream toe area, showing the outlet of the underdrain pipes.</td>
</tr>
<tr>
<td>Photograph 12:</td>
<td>View of the leachate collection pond.</td>
</tr>
</tbody>
</table>
Photograph 13: View of the west pond dam.
ATTACHMENT B

Inspection Map
West Pond (Non-Contact Water) with Brush on downstream slope of the dam

Phase 4 (Blue Shading)

Phase 3 (Green Shading)

Clay Berm (Dashed Blue Line)

Phase 1 (Pink Shading)

1' Deep Erosion Rills on Dirt Road

6" Deep Erosion Rills
Shrubs and excessive vegetation

Leachate Sump & Lift Station

Leachate Collection Pond (Contact Water)

5' Diameter, Soft, Damp Area on Downstream Slope

South Pond Dam (Yellow Shading)

South Pond Forebay

Erosion Gully in Construction Area 1-2' Deep

Erosion Gullies in protective cover of Constructed Area 6"-1' Deep

Underdrain Pipe Outlets (Two)

Area of Previous Sloughing

Phase 2 (Purple Shading)