DTE Energy®

Prepared for

DTE Electric Company
One Energy Plaza
Detroit, Michigan 48226

2017 ANNUAL INSPECTION REPORT
ASH BASIN EMBANKMENT

MONROE POWER PLANT

Monroe, Michigan

Prepared by

Geosyntec consultants

engineers | scientists | innovators

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CHE8242O

January 2018

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1. INTRODUCTION

1.1 Overview

The 2017 Annual Inspection Report (AIR) was prepared by Geosyntec Consultants (Geosyntec) for the DTE Electric Company (DTE) to summarize the results of the annual inspection of the Monroe Ash Basin (Ash Basin). The annual inspection is a part of the Inspection Monitoring and Maintenance (IMM) program for the Ash Basin. The IMM program was prepared to comply with United States Environmental Protection Agency (USEPA) Coal Combustion Residual (CCR) Rule (CCR Rule) published on April 17, 2015 (40 CFR 257.73). Under the CCR Rule, the Ash Basin is an "existing surface impoundment" and must be inspected by a qualified professional engineer on a periodic basis, not to exceed one year.

The site is located about one mile southwest of the Monroe Power Plant near Monroe, Michigan, and is bounded on the east by Lake Erie and the Plant discharge canal, on the west by Interstate Highway 75 (I-75), on the south by an agricultural field, and on the north by residential property and Plum Creek.

The Ash Basin was constructed in the early 1970s to contain a 400-acre ash basin to hold sluiced ash. The Ash Basin is constructed with a 3-1/2-mile long embankment using on-site fine grained (clay) soils that were excavated within the footprint of the Ash Basin. Ash and water is pumped to the Ash Basin using four, above grade pipelines consisting of steel and high-density polyethylene pipes. After treatment in the Ash Basin, water flows out from the Ash Basin through a discharge structure in accordance with the facility National Pollutant Discharge Elimination System (NPDES) permit #MI0001848.

1.2 Purpose

Inspection, monitoring and maintenance of the embankment are performed by DTE pursuant to the combined monitoring and maintenance program described in IMM program (MONPP – 1301 – Rev. A and Rev. B) and the CCR Rule. The objective of the IMM program is to detect indications of potential slope instability in time to allow planning, design, and implementation of appropriate mitigation measures. Further, the purpose of the inspection under the CCR Rule is "…to ensure that the design, construction, operation, and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering standards." (40 CFR 257.83(b)(1)).

The purpose is accomplished through periodic visual inspection (and photo-documentation) of the embankment, monitoring of instrumentation intended to detect movement of the embankment, and review of construction and operating records since the last annual inspection.

1.3 Report Organization

The remainder of this report is organized as follows:

- Section 2 - Review of available information: a summary of various historical documents that were reviewed as part of this inspection.
- Section 3 - Inspection Results: a summary of visual observations recorded during inspections of the ash basin facility.
- Section 4 - Instrumentation Monitoring and Survey Results: a presentation of the data from subsurface instrumentation monitoring and bathometry survey of the Ash Basin.
- Section 5 - Maintenance Activities: a description of the maintenance activities performed during 2015.
- Section 6 - Evaluation: an evaluation of the results of the visual inspection and instrumentation monitoring and recommendations for corrective actions as needed.
- Section 7 - Conclusion: the overall conclusions of the annual inspection.

1.4 Terms of Reference

The annual visual inspection was performed by Mr. Omer Bozok, P.E. and Mr. John Seymour, P.E. of Geosyntec[1], with assistance from DTE's qualified personnel.

The weekly inspections, and monitoring of inclinometers were performed by DTE's qualified personnel.

This report was prepared by Mr. Omer Bozok, P.E. of Geosyntec reviewed was by Mr. John Seymour, P.E. of Geosyntec.

[1] Omer Bozok, P.E. and John Seymour, P.E. of Geosyntec are the qualified professional engineers per the requirements of §257.53 of the CCR Rule. Both engineers have been involved with Monroe Ash Basin since 2009 when the design efforts for the mitigation of the embankment started. Both engineers have extensive knowledge of the site.

2. REVIEW OF AVAILABLE INFORMATION

Geosyntec reviewed the following documents, summarized in Table 1, below.

Table 1: Documents Reviewed

Title	Documentum No.	Prepared by	Year	Content
Monroe Fly Ash Disposal Basin Technical Report	MONPP-0144-77	DTE	1977	Design, construction and operational information.
Inspection, Monitoring and Maintenance Manual	MONPP-1301-Rev. A	Geosyntec	2014	Procedures for inspection, monitoring and maintenance of various facility structures.
Structural Integrity Assessment – Hydraulic Capacity and Safety Factor Assessment		Geosyntec	2017	Results of hydraulic capacity and slope stability analyses.
Fill Plan Alternatives – Rev. B	MONPP-0154-15	Geosyntec	2015	Pros and cons of various fill plan alternatives for the remaining life of the ash basin.
Potential Failure Mode Analysis Results – Rev. 3	MONPP-0152-15	Geosyntec	2015	Results of potential failure mode analysis.
Geotechnical Site Characterization Report	MONPP-0135-10	Geosyntec	2012	Summary of data from various site investigation studies conducted around the perimeter of the embankment.

Title	Documentum No.	Prepared by	Year	Content
2009 Construction Completion Report	MONPP-0134-09	Geosyntec	2010	Construction information for the 2009 construction.
2010 Construction Completion Report	MONPP-0113-10	Geosyntec	2011	Construction information for the 2010 construction.
2011 Construction Completion Report	MONPP-0132-11	Geosyntec	2012	Construction information for the 2011 construction.
2012 Construction Completion Report	MONPP-0129-12	Geosyntec	2013	Construction information for the 2012 construction.
2013 Construction Completion Report	MONPP-0147-12	Geosyntec	2014	Construction information for the 2013 construction.
2014 Annual Inspection Report	MONPP-0152-14	Geosyntec	2015	Summary of quarterly inspection results for 2014.
2015 Annual Inspection Report	MONPP-0152-15	Geosyntec	2016	Summary of annual inspection results for 2016.
Overliner Construction, Phase 1- Construction Quality Assurance Report	MONPP-0155-15	Golder	2015	Construction completion document.
Dust Control Plan	MONPP CCR Fugitive Dust Plan	DTE	2015	Dust control plan.

3. VISUAL INSPECTION RESULTS

DTE performed the following visual inspections in 2017:

- Annual inspection (fall inspection) on October 6, 2017 (provided in Appendix A); and
- Weekly inspections since the beginning of 2017.

DTE's visual inspection for the annual and weekly inspections included the embankment crest, exterior slopes of the embankment, ash discharge point, discharge structure, discharge pipes through the embankment, and discharge channel to Lake Erie. Photographs of observed conditions were taken at the time of the inspection.

In addition to the annual and weekly inspections, the general condition of the site and embankment was visually inspected by DTE on a daily basis.

In general, no sign of distress was observed during the annual inspection on the embankment crest, exterior slopes of the embankment and discharge structure. These structures appeared to be in good condition with the exception of a areas noted below. Non-optimal conditions that were observed during visual inspections are summarized below. These conditions do not represent an immediate concern for the safe operation or stability of the Ash Basin's embankment as discussed in Section 6.

1. Cracks up to several inches wide were observed on the exterior slope of the embankment at Station ~132+00 and ~122+00 (see Photographs 23, 24 and 27).

2. Cracks that are one-inch wide or less were observed on the exterior slope of the embankment at various areas: (i) discrete locations from Station ~122+00 to ~135+00; (ii) Station ~69+00; (iii) between Stations ~176+00 and ~177+00; and (iv) from ~32+00 to ~35+00. Typical cracks are provided on Photographs 3, 13, 14 and 25.

3. The mid-slope stormwater ditch appeared to lose contact with adjacent soil along the downstream edge at multiple locations. In general, the upslope edge appeared to have good contact with adjacent soil (Photograph 19).

4. Downchute at Station 26+00 has lost contact with the embankment at the upstream end of the downchute (Photograph 11).

5. Erosion rills were observed on the embankment, close to the crest, at stations approximately 29+00, 32+00, 35+00 and 115+00 (Photographs 12 and 28).

6. Localized sparse vegetation was observed on the embankment at Stations ~4+00, ~80+00 and ~136+50 (Photographs 22 and 30).

7. Local depression was observed at the toe of the embankment at Station 62+00. No sign of sloughing or cracks were observed on the embankment (Photograph 16).

8. Pipe within the mid-slope stormwater bench was exposed at Station 66+00 (Photograph 18).

4. INSTRUMENTATION MONITORING AND BATHOMETRY SURVEY RESULTS

4.1 Inclinometers

4.1.1 Inclinometer Monitoring Procedures

Ten inclinometers (SIs) are currently being monitored at the embankment. The inclinometer casings were installed from the crest of the embankment to depths of approximately 45 to 50 feet below the crest. The purpose of the inclinometers is to provide a means of measuring horizontal displacement of the ground around the casing. The inclinometer readings provide values of horizontal displacement at discrete depths (at 1.6 ft intervals) in two orthogonal directions (A-axis and B-axis). Plots of horizontal displacement versus depth are generated that provide a vertical profile of the horizontal displacement experienced by the inclinometer casing at the time of the reading.

The orientation of the A-axis and B-axis are unique to the individual inclinometer casing. In general, the positive A-axis corresponds to a direction oriented outward from the basin and approximately perpendicular to the embankment crest station baseline. The B-axis is oriented parallel to the embankment crest station baseline.

Inclinometers were installed in late 2015 and baseline readings were taken on January 1st, 2016. These inclinometers continuously record measurements and were installed to replace the decommissioned inclinometers that required manual recording.

4.1.2 Characterization of Displacement versus Depth Profile Plots

The horizontal displacement versus depth profiles are summarized below for the readings from the time of the annual inspection (September 2016). These conditions do not represent an immediate concern for the safe operation or stability of the ash basin embankment as discussed in Section 6.

4.1.2.1 *Station 11+50 Inclinometer*

- A-axis direction
  - Maximum cumulative displacement magnitude and direction: +0.3 inch at four feet below ground surface.
- B-axis direction
  - Maximum cumulative displacement magnitude and direction: 0.1 inch at six feet below ground surface.

4.1.2.2 ***Station 34+00 Inclinometer***

- A-axis direction
  - Maximum cumulative displacement magnitude and direction: -0.2 inch at the ground surface.
- B-axis direction
  - Maximum cumulative displacement magnitude and direction: -0.1 inch at the ground surface.

4.1.2.3 ***Station 56+00 Inclinometer***

- A-axis direction
  - Maximum cumulative displacement magnitude and direction: +0.1 inch at 10 feet below ground surface.
- B-axis direction
  - Maximum cumulative displacement magnitude and direction: -0.7 inch at seven feet below ground surface.

4.1.2.4 ***Station 65+50 Inclinometer***

- A-axis direction
  - Maximum cumulative displacement magnitude and direction: +0.1 inch at the ground surface.
- B-axis direction
  - Maximum cumulative displacement magnitude and direction: +0.1 inch at the ground surface.

4.1.2.5 ***Station 77+00 Inclinometer***

- A-axis direction
  - Maximum cumulative displacement magnitude and direction: +0.2 inch at the ground surface.
- B-axis direction
  - Maximum cumulative displacement magnitude and direction: -0.2 inch at two feet below ground surface.

4.1.2.6 ***Station 118+00 Inclinometer***

- A-axis direction

- Maximum cumulative displacement magnitude and direction: +0.4 inch at the ground surface.

- B-axis direction
  - Maximum cumulative displacement magnitude and direction: -0.2 inch at the ground surface.

4.1.2.7 *Station 133+00 Inclinometer*

- A-axis direction
  - Maximum cumulative displacement magnitude and direction: +1.1 inch at the ground surface.
- B-axis direction
  - Maximum cumulative displacement magnitude and direction: -0.4 inch at seven feet below ground surface.

4.1.2.8 *Station 142+00 Inclinometer*

- A-axis direction
  - Maximum cumulative displacement magnitude and direction: +0.1 inch at the ground surface.
- B-axis direction
  - Maximum cumulative displacement magnitude and direction: +0.1 inch at two feet below ground surface.

4.1.2.9 *Station 162+50 Inclinometer*

- A-axis direction
  - Maximum cumulative displacement magnitude and direction: +1.4 inch at the ground surface.
- B-axis direction
  - Maximum cumulative displacement magnitude and direction: -0.2 inch at two feet below ground surface.

4.1.2.10 *Station 178+00 Inclinometer*

- A-axis direction
  - Maximum cumulative displacement magnitude and direction: +0.2 inch at the ground surface.
- B-axis direction

- Maximum cumulative displacement magnitude and direction: -0.1 inch 23 feet below ground surface.

4.2 Bathymetric Survey Results

The bathymetric survey of the Ash Basin was performed by DTE survey crew in April and May of 2017. The following were observed or estimated based on the survey results.

1) Water level at the time of survey was at elevation 608.6 ft[2], which is lower than the maximum operation water level of 609 ft.

2) Approximately 60 percent of the Ash Basin footprint is filled with ash above the water level.

3) The maximum water depth is approximately 37.5 ft. The top of ash at this location is at approximate elevation 571.1 ft.

4) The maximum ash thickness is approximately 50 ft, measured from the top of ash at approximate elevation 613 ft to the bottom of the Ash Basin, which is at approximate elevation 563.4 ft. The minimum thickness of ash is approximately 7.7 ft. The maximum and minimum ash thicknesses were approximately 50 ft and 8 ft, respectively in 2016.

5) At the time of the bathymetry measurements:

    a. the remaining storage capacity of the Ash Basin is approximately 3.8 million cubic yards.

    b. approximately 20 million cubic yards of ash is deposited in the Ash Basin.

    c. approximately 790 million gallons of water is impounded in the Ash Basin.

[2] Elevations referred to in this report are based on National Geodetic Vertical Datum of 1929 (NGVD29).

5. MAINTENANCE ACTIVITIES PERFORMED IN 2017

The following maintenance activities were performed in 2017 prior to the annual inspection:

- Flattened sections of the embankment from 2H:1V to 3H:1V;
- Replaced the stormwater pumps at the pump house at Station 139+00;
- Relocated the discharge point of Line 5;
- Seeded exposed ash areas;
- Installed groundwater monitoring wells;
- Mowed the embankment; and
- Maintained the ditch within the ash basin to promote stormwater from the pump house to flow into open water.

6. EVALUATION

6.1 Visual Inspection

Non-optimal conditions noted from the 2017 annual inspection are discussed below:

- Cracks wider than one inch were observed on the exterior slope of the embankment at Station ~132+00 and Station ~122+00. The cracks do not represent an immediate concern for global stability of the Ash Basin embankment. The cracks should be fixed as soon as practical by means of filling with bentonite-sand mixture[3].

- Cracks one-inch wide or less were observed on the exterior slope of the embankment at discrete locations from Station ~122+00 to ~135+00, at Station ~69+00, from Station ~176+00 to Station ~177+00, and from Station ~32+00 to ~35+00 do not represent an immediate concern for global stability of the Ash Basin embankment; these cracks should be monitored on a regular basis at a frequency of once every 30 days (maximum).

- Local depression that was observed at the toe of the embankment at Station 62+00 does not represent an immediate concern for the safe operation or stability of the Ash Basin embankment.

- Isolated problems with the midslope ditch bedding (i.e. pea stone and underlying soil) washing out were observed at downchute at Station 26+00. The observed problems do not represent an immediate concern for the safe operation or stability of the Ash Basin embankment. However, this downchute shall be fixed in accordance with IMM Manual.

- The gap between midslope ditch flap and adjacent ground was observed at various sections along the embankment. These gaps do not represent an immediate concern for the safe operation or stability of the Ash Basin. However, gaps on the upstream side of the midslope ditch shall be filled in accordance with IMM Manual to direct stormwater into the midslope ditch.

- Erosion rills do not represent an immediate concern for the safe operation or stability of the Ash Basin embankment. However, they should be maintained within a year in accordance with IMM Manual.

[3] Cracks identified in this bullet item were addressed as of 1/9/2018.

- Sparse vegetation does not represent an immediate concern for the safe operation or stability of the ash basin embankment.

6.2 Inclinometer Monitoring

The maximum cumulative displacement for all of the inclinometers is 1.4 inches at the ground surface at Station 162+50. This movement was caused mostly by construction activities that were conducted near this inclinometer. Based on discussions with the site personnel who oversaw construction activities, the haul trucks that were utilized to bring soil for slope flattening, parked immediately next to the inclinometer and unloaded the soil from the edge of the embankment; continuous operations for several days caused inclinometer to move outward. However, there is no indication of the embankment at the monitored locations that would suggest a detrimental change in the global embankment stability.

7. CONCLUSION AND CERTIFICATION

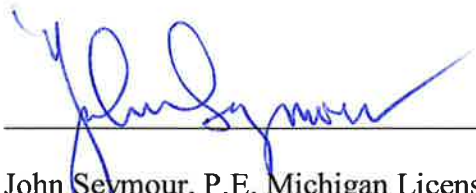
The annual visual inspection did not identify evidence of structural weakness or instability.

Based on the annual inspection results and review of the available data, the Monroe Ash Basin facility was designed, constructed, operated and maintained with generally accepted good engineering standards.

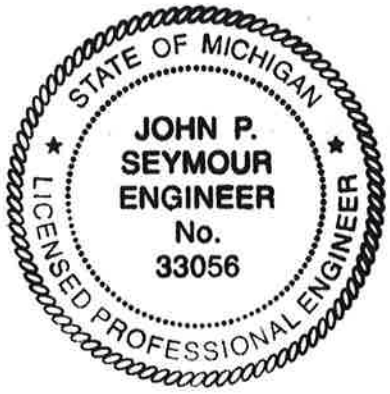
Certified by:

Date 1/9/18

Omer Bozok, P.E. Michigan License Number 6201062700
Project Engineer



Date 1/9/2018



John Seymour, P.E. Michigan License Number 6201033056
Senior Principal

APPENDIX A
2017 ANNUAL INSPECTION FORMS AND PHOTOS

MONROE ASH BASIN 2017 ANNUAL INSPECTION

Name of Surface Impoundment: Monroe Power Plant Ash Basin
Surface Impoundment ID Number:
Owner: DTE Electric Company
Operator:
Site Conditions: Dry

Qualified Engineer: **Omer Bozok P.E., John Seymour P.E.**
Date: 10/6/2017 **Time:** 8 am to 3 pm
Weather: Sunny, High 70s
Precipitation (since last inspection): ____ in.

I. Crest

1. Are there any appearances of actual or potential structural weaknesses (ruts, holes, erosion, cracking, slides, depressions, undesired vegetation etc.)? Provide approximate size and location.)

In general, the crest is in good condition, no cracks or ruts and pot holes deeper than six inches were observed.

2. Are there any significant changes since last inspection? None.

II. Embankment Slopes and adjacent to the Toe of Slope

1. Are there any appearances of actual or potential structural weaknesses (ruts, holes, erosion, cracking, sloughs, depressions, bulges, undesired vegetation etc.)? (Provide approximate size and location/station.

Up to one-inch wide cracks were observed on the upper half of the embankment between stations 122 and 135. They appeared to be discreate but follow generally a consistent alignment (Photographs 25). These cracks were flagged.

Up to approximately five-inch wide and one-foot deep cracks were observed on the upper half of the embankment at stations approximately 122 and 132. These cracks were flagged. (Photographs 23, 24 an 27)

Up to one-inch wide cracks were observed close to crest at station 69. These cracks were flagged.

Up to one-inch wide cracks were observed from station 176 to 177 in the area downslope of the mid-slope blanket drain (Photograph 3).

Up to 3/4-inch wide cracks were observed on the upper half of the embankment station 32 to 35 (Photographs 13 and 14).

Erosion rills were observed on the embankment, close to the crest, at stations approximately 29, 32, 35 and 115 (Photographs 12 and 28).

2. Are there any visible wet areas on the downstream slope? None.

3. Are there any significant changes since the last inspection?

DTE is currently flattening slopes from 2H:1V to 3H:1V from station 160 to 168, from station 52 to 60 and reconstructing the upper several feet of the embankment from station 141 to 146.

III. Surface Impoundment Conditions

1. Is the in-flow piping to the surface impoundment flowing freely to open water? X Yes ____ No
If 'No', describe (type of debris, reason for obstruction, etc.)

2. What is the water level in the surface impoundment today?
Maximum Pool Level / Datum 609 ft / NGVD29 Pool Level is 608.5 ft

3. Is there excessive CCR build-up above the water surface that could lead to overtopping?

There is CCR above the water level, however discharge lines 1 and 3 directly discharge into open water. Therefore, overtopping is considered unlikely.

4. Are there any significant changes since the last inspection? None.

DTE Energy

MONROE ASH BASIN 2017 ANNUAL INSPECTION

IV. Discharge Structure and Channel

1. Are there any cracks or breaks in concrete or steel parts of the discharge structure, or obstructions to water flow (If 'Yes' report the location and severity).

Discharge structure and channel appeared to be in working condition.

2. Are there signs of slope distress or seepage on the slope between the inlet and outlet structures or turbidity in the outflow?

None.

3. Is the weir at the downstream of discharge channel in working condition? *If 'No', describe the issue.*

It appeared to be in working condition.

VI. Slurry Piping

1. Are there any breaks or leaks along the embankment? ___ Yes X No

If 'Yes', describe (the line #, location, severity, etc.)

VII. Repairs, Maintenance, Action Items

2. Has this inspection identified any need for repair or maintenance? If 'Yes', describe and state the urgency of maintenance. "Urgent" for maintenance that should be conducted as soon as possible, "Moderate" for maintenance that should be conducted within three months, and "Not Urgent" for maintenance that can be conducted in a year. X Yes ___ No

See Section 6.1 of the Report.

VIII. Photography

Photographs can be taken of notable features. List of photographs:

	Location	Direction of Photo	Description
1	SEE ATTACHED PHOTO LOG.		
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			

DTE ELECTRIC COMPANY
Photographic Record

Client: Detroit Edison | Project Number: CHE8242

Site Name: Monroe Power Plant Ash Basin | Site Location: Monroe, MI

Photograph 1

Date: 6 October 2017

Comments: Photo taken at Station ~175+00, facing north. The embankment appeared to have uniform slopes without sign of distress.

Photograph 2

Date: 6 October 2017

Comments: Photo taken at Station ~179+00, facing north. Crest road appeared to be in good condition.

DTE ELECTRIC COMPANY
Photographic Record

Client: Detroit Edison | Project Number: CHE8242

Site Name: Monroe Power Plant Ash Basin | Site Location: Monroe, MI

Photograph 3

Date: 6 October 2017

Comments: Up to approximately one-inch wide cracks were observed on the embankment. Inspection sheet provides detailed locations of the cracks.

Photograph 4

Date: 6 October 2017

Comments: Aerators located at the downstream end of discharge structure appeared to be in good condition.

DTE ELECTRIC COMPANY
Photographic Record

Client: Detroit Edison | Project Number: CHE8242

Site Name: Monroe Power Plant Ash Basin | Site Location: Monroe, MI

Photograph 5 Date: 6 October 2017 Comments: Ash Basin water level during the time of inspection was at ~698.5 ft.	
Photograph 6 Date: 6 October 2017 Comments: Photo taken at Station ~6+00, facing west. The embankment appeared to have uniform slopes without sign of distress.	

DTE ELECTRIC COMPANY
Photographic Record

Client: Detroit Edison | Project Number: CHE8242

Site Name: Monroe Power Plant Ash Basin | Site Location: Monroe, MI

Photograph 7

Date: 6 October 2017

Comments: In general, the mid-slope stormwater ditch appeared to be in good condition. Vegetation has washed into the ditch, and was generally observed in the ditches.

Photograph 8

Date: 6 October 2017

Comments: Photo taken at Station ~15+00, facing west. The embankment appeared to have uniform slopes without sign of distress.

DTE ELECTRIC COMPANY
Photographic Record

Client: Detroit Edison | Project Number: CHE8242

Site Name: Monroe Power Plant Ash Basin | Site Location: Monroe, MI

Photograph 9

Date: 6 October 2017

Comments: Downchute at Station 18+00. In general, vegetation was observed to be washed out at each downchute location.

Photograph 10

Date: 6 October 2017

Comments: Photo taken at Station ~20+00, facing west. Crest road appeared to be in good condition.

DTE ELECTRIC COMPANY
Photographic Record

Client: Detroit Edison | Project Number: CHE8242

Site Name: Monroe Power Plant Ash Basin | Site Location: Monroe, MI

Photograph 11 Date: 6 October 2017 Comments: Upstream end of downchute at Station 26+00. Couple of inches wide gap was observed between the mid-slope ditch and upslope soil. Vegetation was also observed at the downstream ends of ditches.	
Photograph 12 Date: 6 October 2017 Comments: Erosion rills were observed on the embankment at discrete locations between Stations 29+00 and 35+00.	

DTE ELECTRIC COMPANY
Photographic Record

Client: Detroit Edison | Project Number: CHE8242

Site Name: Monroe Power Plant Ash Basin | Site Location: Monroe, MI

Photograph 13

Date: 6 October 2017

Comments: Up to approximately one-inch wide cracks were observed on the embankment. Inspection sheet provides detailed locations of the cracks.

Photograph 14

Date: 6 October 2017

Comments: Up to several inches wide cracks were observed on the embankment. Inspection sheet provides detailed locations of the cracks.

DTE ELECTRIC COMPANY
Photographic Record

Client: Detroit Edison | Project Number: CHE8242

Site Name: Monroe Power Plant Ash Basin | Site Location: Monroe, MI

Photograph 15 Date: 6 October 2017 Comments: Photo taken at Station 35+00, facing west. The embankment appeared to have uniform slopes without sign of distress.	
Photograph 16 Date: 6 October 2017 Comments: Local depression was observed at the toe of the embankment at Station 62+00. No sign of sloughing or cracks were observed on the embankment.	

DTE ELECTRIC COMPANY
Photographic Record

Client: Detroit Edison | Project Number: CHE8242

Site Name: Monroe Power Plant Ash Basin | Site Location: Monroe, MI

Photograph 17 Date: 6 October 2017 Comments: Cracks on the embankment between Stations 60+00 and 65+00 have been filled with bentonite-sand mixture as part of current construction activities. There are areas that require further filling.	
Photograph 18 Date: 6 October 2017 Comments: Photo taken at Station 66+00, facing east. The embankment appeared to have uniform slopes without sign of distress. Part of the culvert in the mid-slope stormwater conveyance structure, at this location, is exposed. It shall be covered with aggregate.	

DTE ELECTRIC COMPANY
Photographic Record

Client: Detroit Edison | Project Number: CHE8242

Site Name: Monroe Power Plant Ash Basin | Site Location: Monroe, MI

Photograph 19

Date: 6 October 2017

Comments: Photo taken at Station 156+00, facing northwest. The embankment appeared to have uniform slopes without sign of distress.

Photograph 20

Date: 6 October 2017

Comments: Downchute at Station 156+50. The upslope section has a good connection with the embankment.

DTE ELECTRIC COMPANY
Photographic Record

Client: Detroit Edison | Project Number: CHE8242

Site Name: Monroe Power Plant Ash Basin | Site Location: Monroe, MI

Photograph 21

Date: 6 October 2017

Comments: Photo taken at Station 135+00, facing east. The embankment appeared to have uniform slopes without sign of distress, except those areas where cracks were observed. The locations of cracks are provided in detail in the inspection sheet.

Photograph 22

Date: 6 October 2017

Comments: Photo take at Station 136+50. Several areas with sparse vegetation was observed around the embankment.

DTE ELECTRIC COMPANY
Photographic Record

Client: Detroit Edison | Project Number: CHE8242

Site Name: Monroe Power Plant Ash Basin | Site Location: Monroe, MI

Photograph 23

Date: 6 October 2017

Comments: Up to several inches wide cracks were observed on the embankment. Inspection sheet provides detailed locations of the cracks.

Photograph 24

Date: 6 October 2017

Comments: Up to several inches wide cracks were observed on the embankment. Inspection sheet provides detailed locations of the cracks.

DTE ELECTRIC COMPANY
Photographic Record

Client: Detroit Edison | Project Number: CHE8242

Site Name: Monroe Power Plant Ash Basin | Site Location: Monroe, MI

Photograph 25

Date: 6 October 2017

Comments: Up to one-inch wide cracks were observed on the embankment. Inspection sheet provides detailed locations of the cracks.

Photograph 26

Date: 6 October 2017

Comments: Photo taken at Station ~130+00, facing west. Crest road appeared to be in good condition.

DTE ELECTRIC COMPANY
Photographic Record

Client: Detroit Edison | Project Number: CHE8242

Site Name: Monroe Power Plant Ash Basin | Site Location: Monroe, MI

Photograph 27

Date: 6 October 2017

Comments: Up to several inches wide cracks were observed on the embankment. Inspection sheet provides detailed locations of the cracks.

Photograph 28

Date: 6 October 2017

Comments: Section of the embankment that was mitigated with aggregate at Station ~115+00 has eroded.

DTE ELECTRIC COMPANY
Photographic Record

Client: Detroit Edison | Project Number: CHE8242

Site Name: Monroe Power Plant Ash Basin | Site Location: Monroe, MI

Photograph 29

Date: 6 October 2017

Comments: Downchute at Station 87+00. The upslope section has a good connection with the embankment.

Photograph 30

Date: 6 October 2017

Comments: Photo taken at Station 80+00, facing north. Several areas with sparse vegetation was observed around the embankment.

DTE ELECTRIC COMPANY
Photographic Record

Client: Detroit Edison | Project Number: CHE8242

Site Name: Monroe Power Plant Ash Basin | Site Location: Monroe, MI

Photograph 31

Date: 6 October 2017

Comments: Photo taken at Station 75+00, facing south. The embankment appeared to have uniform slopes without sign of distress.

Photograph 32

Date: 6 October 2017

Comments: Photo taken at Station 65+00, facing east. The embankment appeared to have uniform slopes without sign of distress.