Prepared for

DTE Electric Company
One Energy Plaza
Detroit, Michigan 48226

2021 ANNUAL INSPECTION REPORT
SIBLEY QUARRY LANDFILL

Trenton, Michigan

Prepared by

Geosyntec consultants

engineers | scientists | innovators

3520 Green Court, Suite 275
Ann Arbor, MI 48105

CHE8312

January 2022

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF APPENDICES

1. INTRODUCTION

1.1 Overview

This 2021 Annual Inspection Report (AIR) was prepared by Geosyntec Consultants (Geosyntec) for DTE Electric Company's (DTE's) Sibley Quarry Landfill ("Landfill"). The inspection was performed to comply with the United States Environmental Protection Agency (USEPA) Coal Combustion Residual (CCR) Rule published on April 17, 2015 (40 CFR Parts 257 and 261). Under the CCR Rule, Sibley Quarry is an "existing landfill" and must be inspected by a qualified professional engineer on a periodic basis, not to exceed one year.

The site is located in Trenton, Michigan. The site is an inactive limestone quarry that was operated since the mid-nineteenth century and mined to a depth of over 300 feet below ground surface ("bgs") in some areas. The site is currently licensed as a coal ash landfill under the provisions of Michigan Part 115, Solid Waste Management, of the Natural Resource and Environmental Protection Act (NREPA), 1994 Public Act ("PA") 451, as amended.

1.2 Purpose

The objective of the inspection is to detect indications of instability in time to allow planning, design, and implementation of appropriate mitigation measures. The purpose of the inspection under the CCR Rule (40CFR 257.84(b)(1)) is:

> "…to ensure that the design, construction, operation, and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering standards." The inspection must, at a minimum, include:
>
> (i) A review of the available information regarding the status and condition of the CCR unit, including, but not limited to, files available in the operating record (e.g., the results of an inspection by a qualified person, and results of previous annual inspections); and
>
> (ii) A visual inspection of the CCR unit to identify signs of distress or malfunction of the CCR unit."

The purpose is accomplished through periodic visual inspection (and photo-documentation) of the Landfill, review of the previous inspection, and discussions with site personnel about the history of the site and general operations at the Landfill.

1.3 Report Organization

The remainder of this report is organized as follows:

- Section 2 - The Site History and Current Operations: provides information on the history of the site and DTE's current operations.

- Section 3 - Inspection Results: summarizes visual observations recorded during inspections of the Landfill.

- Section 4 - Evaluation: evaluates the results of the inspection to assess if the design, construction, operation, and maintenance of the CCR unit are consistent with recognized and generally accepted good engineering standards.

- Section 5 - Conclusions: provides the overall conclusions of the annual inspection.

1.4 Terms of Reference

The annual visual inspection was performed on April 7, 2021, by Mr. Omer Bozok, P.E. of Geosyntec[1], with assistance from DTE Staff.

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

[1] Omer Bozok, P.E. is the qualified professional engineers per the requirements of §257.53 of the CCR Rule. He has 11 years of practicing experience with coal ash related projects. His resume is provided in Appendix B.

2. THE SITE HISTORY AND CURRENT OPERATIONS

The site originally operated as a limestone quarry beginning in the 1800s. The site was acquired by DTE in 1951 and has operated as a landfill since. Over the life of the Landfill, it received CCR from various DTE power plants, and other Midwest power plants, including Wyandotte power plant (mainly fly ash with some bottom ash). At the time of inspection, the Landfill was receiving CCR from DTE's Monroe and Trenton Channel power plants, along with inert material generated from DTE projects in Michigan. Currently, the Landfill accepts coal ash generated only by DTE. The approximate disposal rate is 50,000 CY/year of CCR and 35,000 CY/year of inert material.

There are no construction or design documents available for the original quarry. Based on a review of current and historical maps, and correspondences with DTE personnel, limestone and dolomite were mined from the site to a depth of approximately 300 feet bgs, with multiple setbacks/benches.

The current site plan is provided in Figure 1. The site is approximately 207 acres, of which approximately:

(i) 92 acres is currently licensed as an active landfill area;

(ii) 90 acres have received final cover approved by the Michigan Department of Environment, Great Lakes, and Energy (EGLE); and

(iii) the remaining 25 acres are not used for disposal.

The operations at the site consist of three main activities:

(i) placement of CCR;

(ii) continuous pumping of groundwater and stormwater; and

(iii) treatment of pumped water before discharging into the Detroit River through a National Pollutant Discharge Elimination System (NPDES) permit.

CCR is disposed of by end-dumping and spreading. The amount of CCR disposed of in the Landfill is currently estimated to be approximately 12,790,000 CY.

Groundwater is continuously pumped from the lowest point of the quarry to maintain a consistent water level below the CCR. Therefore, the steady-state groundwater level is maintained below the lowermost area of the quarry. The pumping rate is approximately 1.5 million gallons per day (MGD) based on discussions with site personnel. Groundwater is pumped into two ponds located at the top of the quarry (referred to as "upper ponds") and treated. Treated water from the upper ponds discharges into a conveyance channel. The conveyance channel is approximately one-half

mile long and conveys water to settling ponds. A pump house at the southern end of the settling ponds pumps the water to the Detroit River. The water is discharged to the Detroit River, consistent with NPDES permit requirements.

Water samples are collected weekly from the pump house, and analytical results are compared to the limits provided in the NPDES permit.

Dust at the site is controlled in accordance with the site-specific Fugitive Dust Plan. Per the plan: (i) vehicular speed is limited to a maximum 15 mph; (ii) paved surfaces are frequently swept with wet broom equipment; and (iii) unpaved roads are wetted during landfill operations, as necessary. Unpaved roads are also treated with an acrylic cement emulsion two times per year. In addition, soil is placed onto CCR upon disposal if there is available soils (more information is provided in Section 3). On the Annual Fugitive Dust Report dated November 2021, DTE reported that there was one citizen complaint about fugitive dust.

3. OBSERVATIONS FROM THE ANNUAL INSPECTION

Inspection results and photographs from the annual inspection are provided in Appendix A. The key observations from the inspection are summarized below.

1) Capital improvements are being implemented at the site. The following changes have been observed at the site since the 2020 inspection:

    a. A new road called "Switchback-2" has been constructed since the last annual inspection. Switchback-2 provides DTE with the ability to haul material to the bottom of the quarry.

    b. DTE is in the process of constructing a drainage collection and filter layer at the bottom of the quarry. Once completed and approved by EGLE, the bottom of the quarry will be ready for filling activities.

    c. DTE is in the process of conducting earthwork for the construction of a future ash conveyor system.

    d. DTE is in the process of improving the existing fugitive dust control system.

    e. DTE has installed a new gate and re-constructed the asphalt road at the top of the quarry.

2) The disposal operations consist of stockpiling material at the top of the active filling area (see Photographs 1 and 2) while the bottom of the quarry is prepared for active filling. The outer face of the active filling area is steep; ranging from approximately 1H:1V to 1.7H:1V. Material is stockpiled along the edge of the slope and within the area farther away from the edge of the slope (See Photographs 3 and 4).

3) The quarry bedrock side walls are fractured, and groundwater inflow is observed at several sections (see Photograph 7).

4) Groundwater and stormwater within the quarry drain by gravity to the sump at the bottom of the quarry. Drainage channels were observed along the access roads, conveying water to lower elevations to the sump at the bottom of the quarry. Based on discussions with the site personnel, the pump operating at the sump discharges approximately 1.5 MGD to keep the sump elevation at approximately 300 feet above mean sea level, which is coincidentally, approximately 300 feet bgs.

5) Based on topographic information, the Landfill does not appear to have direct run-on from the adjacent areas.

6) Erosion rills and a gully were observed on the CCR slopes (see Photograph 5). These erosion features do not have to be maintained due to the incised nature of the Landfill.

7) The Quarry sump, sump pump, upper ponds, conveyance channel, and settling ponds appeared to be in good condition. Water discharging from the conveyance channel to Settling Pond #4 appeared to be clear (see Photograph 10).

8) DTE reported that a dust complaint was filed on March 24, 2021. On that day, the facility received wind gusts of up to approximately 40 miles per hour. To respond to the event, an additional water truck was mobilized to the facility on that day to help control the dust. The facility applied a dust suppressant to the exposed slopes on March 25, 2021 to control fugitive dust.

4. EVALUATION OF OBSERVATIONS

The Landfill is operated within a quarry, below ground surface; and therefore, the sidewalls of the quarry provide the containment system for the Landfill. If the side walls were to fail, there would be no consequential release of CCR into areas beyond the footprint of the Landfill because the Landfill is below ground surface, and failure would be contained within the quarry.

There is a concern for safety and slope stability during stockpiling on the bench near the edge of the slope at the top of the active filling area. Stockpiling at the edge of the slope adds load to the top of the slope and may cause a slope stability failure.

Geosyntec provided a recommendation upon the annual inspection that: (i) no material be stockpiled at the top of active fill area; (ii) no water is allowed to flow onto the slope; (iii) top of active fill area graded to avoid ponding within minimum 100 ft of the top of the slope; and (iv) stability of slopes assessed. Since the recommendations, DTE has implemented changes to operating procedures, and there is no longer stockpiling at the top of active fill areas. In addition, DTE flattened part of the active fill slopes to increase stability and conducted a site investigation to obtain data for a slope stability assessment. The slope stability analysis has been initiated and is in progress. Additional recommendations may be made to DTE pending the results of the study.

DTE is in the process of implementing capital improvements at the site in accordance with a recently developed fill plan which includes installing a conveyor system to dispose of CCR from the east edge of the quarry and filling from the bottom of the quarry. DTE stated that: (i) once the capital improvements are complete, waste material will be directly hauled to the bottom of the quarry and placed within the designated fill area thereby discontinuing the current top bench disposal practice; and (ii) the safety concern related to falling rocks within the work area is being addressed by keeping a minimum of the 50-ft safety zone in the active filling areas, between the quarry walls and a safety berm.

5. CONCLUSIONS AND CERTIFICATION

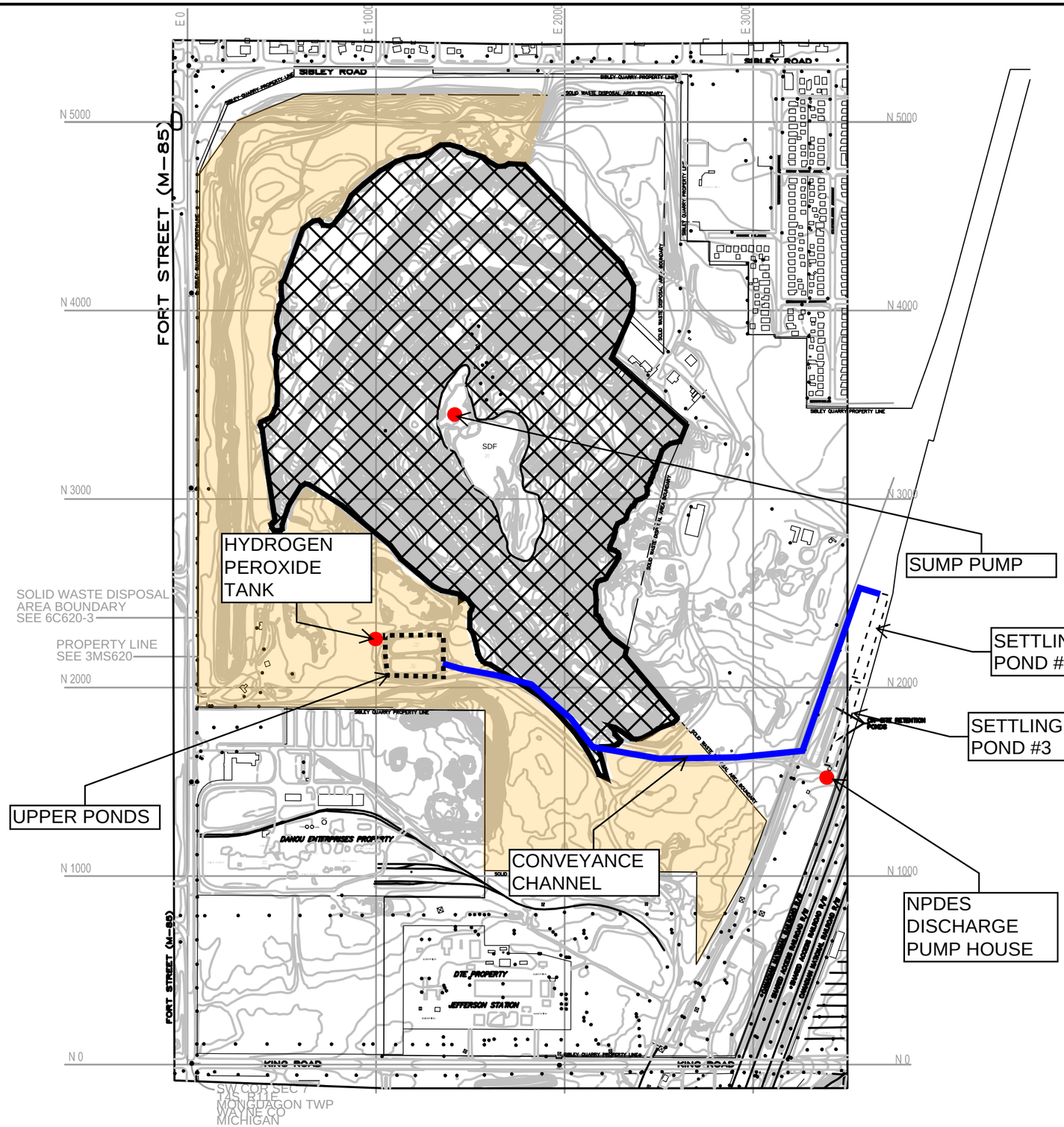
The annual visual inspection did not identify evidence of structural weakness or instability of the containment system (quarry side walls) that would cause CCR to release into the areas outside the footprint of the Landfill.

In general, the site is operated and maintained with recognized and generally accepted good engineering practices. There are safety concerns that exist associated with filling operations near steep slopes and potential rockfalls within work areas and along traffic routes. DTE is in the process of addressing slope stability and safety concerns.

Certified by:

_____ Date January 7, 2022

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



NOTES:

1. TOPOGRAPHIC INFORMATION GENERATED FROM AERIAL PHOTOGRAPHY DATED 27 APRIL 2013 BY KUCERA INTERNATIONAL, INC., WILLOUGHBY, OH.

LEGEND

PERMITTED FILL AREA

APPROXIMATE LANDFILL AREA THAT RECEIVED CLAY COVER

N

0 800' 1600'

SCALE IN FEET

SIBLEY QUARRY LANDFILL SITE PLAN

Geosyntec consultants
CHICAGO, ILLINOIS

PROJECT NO: CHE8312 | AUGUST 2020 | FIGURE 1

\\CHICAGO-01\DWG\D\DTE\SIBLEY QUARRY - CHE8312\FIGURE 1 FOR ANNUAL INSPECTION REPORTS\8312 F001 - 2020 ANNUAL INSPECTION

APPENDIX A

2021 ANNUAL INSPECTION FORMS AND PHOTOS

Sibley Quarry - CCR Landfill
2021 Annual Inspection Report

Name of CCR Landfill: Sibley Quarry Landfill **Qualified Professional Engineer** Omer Bozok, P.E.
Owner: DTE Electric Company **Date:** 4/7/2021 **Time:** 8 am to 11 am
Weather: Sunny, 70s **Precipitation (past week):** 2.8 in.
Site Conditions: Dry

I. Landfill Perimeter, Side Walls and Access Ramps

1. How would you describe the vegetation at the? (Check all that apply)

___ Recently Mowed
X Overgrown
X Good Cover
X Sparse
___ Paved
___ Gravel

Other (describe): Most of the area outside of the active filling area has a good cover of grass and trees. Area along the southeast corner of the quarry perimeter has sparse vegetation.

2. Are there any areas of hydrophilic (lush, water-loving) vegetation? X Yes ___ No
If 'Yes', describe (size, location, severity, etc.)
Multiple areas within the landfill, where water tends to flow through, or stand has established phragmites. This vegetation is not on CCR slopes, but along drainage channels and on high wall setbacks.

3. Are there any trees or other undesired vegetation? X Yes ___ No
If 'Yes', describe (type of vegetation, size, location, etc.) Most of the eastern and southern sides have trees in various sizes. There are some trees observed on CCR cover on the northern, western and southern sides.

4. Is there an access ramp in the landfill? X Yes ___ No
If 'Yes', describe (good condition, numerous cracks, newly paved, stone uniformly distributed, etc.)
The access ramps are in good condition.

5. Are there any depressions, ruts, or holes on the access ramp or road? ___ Yes X No
If 'Yes', describe (size, location, etc.)

6. Are there any fractures on side walls? X Yes ___ No
If 'Yes', describe (length and width, location and direction of cracking, slough, or distress, etc.)
There are bedrock fractures on the quarry sidewalls.

7. Are there wet areas that indicate seepage through the side walls? X Yes ___ No
If 'Yes', describe (size, location, etc.) Multiple areas on the quarry sidewalls show damp conditions or natural groundwater seepage (Photograph 7).

8. Other observations, changes since last inspection:

II. Stormwater Conveyance Structures

1. Describe what types of stormwater conveyance structures there are at the site (e.g. drop inlets, downchutes, benches, ponds, outlet structures, etc.).
Stormwater within the footprint of the site gravity drains to the sump at the bottom of quarry. Channels were observed along the access ramps, conveying stormwater/groundwater to lower elevations. There is a culvert at a low spot underneath the access ramp conveying stormwater/groundwater to the sump.

Name of CCR Landfill: Sibley Quarry Landfill **Qualified Professional Engineer** Omer Bozok, P.E.
Owner: DTE Electric Company **Date:** 4/7/2021 **Time:** 8 am to 11 am

2. Describe the condition of stormwater structures mentioned above. (Are they in working condition? Is there any erosion in or around the structures, sings of leakage or movement, etc.?)

Stormwater structures are in working order.

III. Landfill Conditions

1. Describe operations in the landfill (disposal, reclamation, general operational activities):
CCR from various DTE power plants are disposed in the landfill by stockpiling and spreading within the upper most active filling area (Photograph 1 through 4).

2. Are any stormwater controls obstructed? ___ Yes X No
If 'Yes', describe (type of debris, reason for obstruction, etc.)

3. Are there indications of erosion on the landfill slopes? X Yes ___ No
If 'Yes', describe what type and its condition (rill, gully, dimensions, etc.)
Erosion rills and a gully were observed on the inner slopes (Photograph 7). There are no outer slopes because the CCR is contained within the quarry.

4. Is the leachate collection system functioning (describe discharge color, quantity)?
The pond located at the bottom of the quarry is considered as the leachate collection pond (Photograph 6). The upper ponds act as the leachate treatment ponds. Groundwater and CCR contact water that accumulates in the lower pond is pumped to the upper ponds for treatment (Photograph 8). Both ponds appear to be in good working condition.

5. How is the leachate stored? Comment on the condition of the structure.
See the explanation for Item 4 above.

6. Other observations around the landfill (changes since last inspection, etc.):

Sibley Quarry - CCR Landfill
2021 Annual Inspection Report

Name of CCR Landfill: Sibley Quarry Landfill **Qualified Professional Engineer** Omer Bozok, P.E.
Owner: DTE Electric Company **Date:** 4/7/2021 **Time:** 8 am to 11 am

IV. Leachate Pond Spillways

1. What types of spillways does the leachate pond have (concrete, earth, riprap, etc.)?
   Principal Spillway: _____ Emergency Spillway: _____
   Other: There is no spillway.

V. Repairs, Maintenance, Action Items

1. Has any routine maintenance been conducted since the last inspection? X Yes ___ No
   If 'Yes', describe.
   Installed a silt curtain in the lower pond, where pumping occurs, and installed two silt curtains in the upper treatment ponds. Currently in the process of upgrading the truck wheel wash and dust conrol sprinkler system.

2. Have any repairs been made since the last inspection? X Yes ___ No
   If 'Yes', describe.
   DTE is in the process of implementing capital improvements at the site. A new gate and asphalt road has been constructed around the trailer area. A new road to the bottom of the quarry (i.e. Switchback-2) was constructed. New trailer is being built. Grading work for the foundation of future conveyor system is being performed.

3. Are there any areas of potential concern? X Yes ___ No
   If 'Yes', describe.
   There are two main concerns. One concern is that rock pieces may fall from the side walls during daily operations is a serious situation. The other concern is that some of the disposed material is stockpiled along the edge of active filling area (Photographs 1 through 4). DTE is currently in the process of preparing a fill area at the bottom of the quarry. Once completed, DTE will be able to haul material to the bottom of the quarry for placement and eliminate stockpiling near the edge of upper slope at the active filling area.

4. Has this inspection identified any need for repair or maintenance? ___ Yes X No
   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.

VI. Photographs

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

	Location	Direction of Photo	Description
i.	SEE THE ATTACHED PHOTO LOG.		
ii.			
iii.			

Sibley Quarry - CCR Landfill
2021 Annual Inspection Report

Name of CCR Landfill: **Sibley Quarry Landfill** **Qualified Professional Engineer** Omer Bozok, P.E.
Owner: **DTE Electric Company** **Date:** 4/7/2021 **Time:** 8 am to 11 am

iv.			
v.			
vi.			
vii.			
viii.			
ix.			
x.			

DTE ELECTRIC COMPANY

Photographic Record

Client: DTE Electric Company | Project Number: CHE8312

Site Name: Sibley Quarry Landfill | Site Location: Trenton, MI

Photograph 1 Date: 4/7/2021 Comments: View of active filling area and the recently built Switchback-2. Facing Northeast.	
Photograph 2 Date: 4/7/2021 Comments: View of the active filling area and Road Switchback-2 leading to the bottom of quarry. Facing West.	

DTE ELECTRIC COMPANY

Photographic Record

Client: DTE Electric Company | Project Number: CHE8312

Site Name: Sibley Quarry Landfill | Site Location: Trenton, MI

Photograph 3 Date: 4/7/2021 Comments: The active filling area with disposed material stockpiled across the area. Facing west.	
Photograph 4 Date: 4/7/2021 Comments: View from the edge of slope at the active filling area. Facing West.	

DTE ELECTRIC COMPANY

Photographic Record

Client: DTE Electric Company | Project Number: CHE8312

Site Name: Sibley Quarry Landfill | Site Location: Trenton, MI

Photograph 5

Date: 4/7/2021

Comments: Erosion features on internal fill slopes. Facing North.

Photograph 6

Date: 4/7/2021

Comments: The main sump pump operating at the bottom of the quarry. Facing West.

DTE ELECTRIC COMPANY

Photographic Record

Client: DTE Electric Company | Project Number: CHE8312

Site Name: Sibley Quarry Landfill | Site Location: Trenton, MI

Photograph 7

Date: 4/7/2021

Comments: Typical seepage area on the quarry side wall. Seep areas generally have brownish color.

Photograph 8

Date: 4/7/2021

Comments: View of upper pond, facing West; water from the sump pump is discharged into upper pond.

DTE ELECTRIC COMPANY

Photographic Record

Client: DTE Electric Company | Project Number: CHE8312

Site Name: Sibley Quarry Landfill | Site Location: Trenton, MI

Photograph 9

Date: 4/7/2021

Comments: Outlet of the upper pond.

Photograph 10

Date: 4/7/2021

Comments: Water from the upper pond is conveyed into Settling Pond #4. Facing South.

DTE ELECTRIC COMPANY

Photographic Record

Client: DTE Electric Company	Project Number: CHE8312
Site Name: Sibley Quarry Landfill	Site Location: Trenton, MI

Photograph 11	
Date: 4/7/2021 Comments: View of Settling Pond #3, where the pump house is located. Facing South.	
Photograph 12	
Date: 4/7/2021 Comments:	

APPENDIX B

RESUME OF OMER BOZOK, P.E. (QUALIFIED PROFESSIONAL ENGINEER)

OMER BOZOK, P.E.

Specialties

- CCR Engineering
- Geotechnical Engineering
- Construction Quality Assurance

Education

M.S., Geotechnical Engineering, University of Missouri, Columbia, Columbia, Missouri, 2009

B.S., Geological Engineering, Hacettepe University, Ankara, Turkey, 2007

Registrations and Certifications

P.E. in Michigan and Ohio

CAREER SUMMARY

Mr. Bozok is a project engineer and responsible for managing large-scale civil projects, reviewing engineering data, writing technical reports, generating/reviewing drawings, performing geotechnical analyses and design, and managing construction quality assurance (CQA) activities.

He is experienced in design, inspection, instrumentation/monitoring, and operations of coal ash facilities. Mr. Bozok managed design of four large-scale civil projects: involving (i) mitigation of a 3.5-mile long embankment, encompassing 400-acre ash basin; (ii) closure of a 300-acre ash basin and lowering of a 100-ft tall dam; (iii) closure of a 50-acre ash basin; and (iv) remediation of a 50-acre existing Superfund landfill.

KEY PROJECT EXPERIENCE

Wood River West Ash Complex Closure, Vistra Energy, East Alton, Illinois. Mr. Bozok is the project manager and the lead civil design engineer for the project that involves closure of an existing 50-acre fly ash pond, detailed dewatering design and relocation of plant discharge pipes. The project requires approximately one million CY of earthwork. The scale of the project, availability of limited on-site materials, nature of loose ash, and extent of groundwater makes it a challenging project.

Embankment Mitigation for Fly Ash Basin and CQA, DTE Energy, Monroe, Michigan. Mr. Bozok served as the project manager and the lead civil design engineer for the project that involved design and mitigation of an existing fly ash basin embankment. The embankment is 3.5-miles long and 40-ft high. Mainly, mitigation measures included flattening of the existing slopes from 2 horizontal to 1 vertical (2H:1V) slopes to 2.5H:1V with a mid-slope stormwater conveyance channel. The project was completed in five construction seasons (2009 through 2013). Mr. Bozok managed CQA activities during construction.

The project won DTE's "Best Large Project Award" under their Major Enterprise Project group. The five-year project was completed under budget, within schedule and with no safety incidents.

Settling Pond Fly Ash Removal and CQA, City of Escanaba, Escanaba, Michigan. Project included removal of fly ash from a settling pond and adjacent areas that required excavation and re-grading. Settling pond was utilized by City of Escanaba Generating Station to dispose its coal combustion residuals. Mr. Bozok designed the cleanout, assisted with contractor bids and selection, managed onsite CQA personnel on a day to day basis, reviewed daily reports, the contractor's submittals, responded to the contractor's and the owner's requests in a timely manner for the orderly execution of the work.

CQA of Plate Load Test on Slurried Fly Ash, Electric Power Research Institute, Central City, Kentucky. Mr. Bozok documented construction and testing of a plate

load test on slurried fly ash at a power plant ash disposal basin. The test was performed by applying load on a stiffened 5-ft by 5-ft test plate. The load was resisted by four micropiles drilled into bedrock. In addition, Mr. Bozok provided oversight for the field investigation that included CPTu testing, shear wave testing and soil borings.

MIG/DeWane Superfund Site Remedial Design and Construction CQA, Republic Services, Belvidere, Illinois. Mr. Bozok was the lead design engineer for closure of a Superfund site, and managed CQA activities during construction. The project involved preparing remedial design construction drawings for an existing approximately 50-acre Superfund site to upgrade an interim cap that had been installed in 1990s. Design included: (i) construction of leachate and gas collection system consisting of approximately 4,000-ft long leachate and gas collection system trench, and underground and above ground storage tanks; (ii) augmentation of the existing clay fill cover by compacting additional clay fill; and (iii) implementation of stormwater management system.

Probabilistic Slope Stability Analysis for Fly Ash Basin, DTE Energy, Monroe, Michigan. Mr. Bozok served as the lead geotechnical engineer for the project. The client was considering mitigating a portion of a 3.5-miles long and 40-ft high the embankment to improve slope stability safety factor. Mr. Bozok performed probabilistic slope stability analysis to assess the global stability and recommend mitigation measures, if necessary. Mr. Bozok provided the client with a probability of failure information for the embankment and the client decided that mitigation was not necessary. This provided the client with approximately 5-million-dollar savings.

Emergency Action Plan for Fly Ash Basin, DTE Energy, Monroe, Michigan. Mr. Bozok prepared an Emergency Action Plan (EAP) for a 400-acre ash basin that has 3.5-miles long, 40-ft high embankment. The Ash Basin is critically bounded on the east by Lake Erie, on the west by Interstate Highway 75 (I-75), on the north by Plum Creek, and on the south by an agricultural field. Mr. Bozok evaluated four failure scenarios at critical locations around the perimeter embankment and developed the EAP based on Federal Emergency Management Agency Guidelines for Dam Safety.

Potential Failure Mode Analysis for Fly Ash Basin, DTE Energy, Monroe, Michigan. Mr. Bozok worked with the client to identify potential failure modes for a 400-acre ash basin that could cause ash release, resulting in environmental impact and potential for human life loss. Mr. Bozok facilitated meetings with client's staff including personnel from operations, maintenance, engineering and environmental group, to rank and categorize potential failure modes. Upon, identifying medium and high-risk failure modes, Mr. Bozok worked with the client to design and implement mitigation measures to lower risk levels.

Operations Plan for Fly Ash Basin, DTE Energy, Monroe, Michigan. Mr. Bozok, prepared a set of operations plan drawings along with the inspection, monitoring and maintenance manual for a 400-acre fly ash basin facility. Project involved installation of a continuous monitoring and alarm system for the ash basin embankment inclinometers. Mr. Bozok directed a group of field staff and instrumentation engineers to implement the program. The operations plan provides guidelines on how to safely operate the fly ash basin, structures, provides communication procedures, and provides action criteria for surface and subsurface instrumentation.

Seep Investigation Study for Fly Ash Basin, DTE Energy, Monroe, Michigan. Mr. Bozok prepared a seep investigation report for the Monroe Ash Basin embankment. The purpose of the study was to find the origin of water observed in slope indicator casings and standing water along the toe of the embankment and to recommend a mitigation approach. Mr. Bozok reviewed and evaluated the field data (including water level readings from the casings, pore pressure data from piezometers and precipitation data) and groundwater and fly ash chemical analysis results.

Stingy Run Fly Ash Reservoir Closure, American Electric Power, Cheshire, Ohio. Mr. Bozok is the project manager and the lead civil design engineer for the project that involves closure of an existing 300-acre fly ash pond and lowering of 100-ft tall dam. The project requires approximately 4 million CY of earthwork. The scale of the project, nature of loose ash, lowering of the dam, nearby highwalls, wetlands and streams make it a challenging design project and involves collaboration between different disciplines.

Use of Instrumented Test Fill to Assess Static Liquefaction of Impounded Fly Ash for Cardinal Landfill, American Electric Power, Brilliant, Ohio. Mr. Bozok assessed the potential for a fly ash subgrade to undergo static liquefaction using results from an instrumented test fill. Mr. Bozok performed time-rate settlement analyses for a flue gas desulfurization (FGD) waste landfill to be constructed over an existing fly ash pond. He evaluated the coefficient of consolidation of ash by interpreting CPTu dissipation tests and compared it against the values in the literature. Mr. Bozok used the software program SAF-TR to model the effect of ramp loading on excess pore pressure and compared it to results

from a full-scale test.

Sibley Quarry CCR Landfill Fill Plan, DTE Energy, Trenton, Michigan. Mr. Bozok was the lead civil design engineer assisting the client with phasing of landfill operations. The existing operations, site conditions and the need for landfilling 16 MCY of CCR made it a challenging project.

Engineering Correlations for Geotechnical Parameters for Ponded Fly Ash, EPRI, Palo Alto, California. Mr. Bozok was one of the principal investigators and managed the field investigation activities. The project involved performing a field plate load test at an ash basin site and preparing a report summarizing findings of the study.

Evaluation of Fly Ash Diagenesis Potential, EPRI, Palo Alto, California. Mr. Bozok was the lead principal investigator for this project. The project involved: (i) establishing a method for creating a pluviated specimen in a lab environment that reasonably represents in-situ conditions; and (ii) studying diagenesis potential of Class F fly ash and its impact on engineering characteristics.

Annual Inspection of Ash Impoundments and Landfills, DTE Energy, various locations. Mr. Bozok inspected Sibley Quarry Landfill and Monroe Ash Basin and prepared annual inspection reports per the requirements of USEPA CCR rules.

Review of Safety Factor Assessments for Various Sites, Dynegy, various locations. Mr. Bozok was a key member of a team, which reviewed safety factor assessments for various high-risk sites that were prepared by another consulting firm. The documents were prepared to meet the requirements of USEPA CCR rules and required diligent review before made available to the public.

Documentation for USEPA CCR Rules, DTE Energy, Monroe, Michigan. Mr. Bozok assisted client with meeting the documentation requirements of USEPA CCR rules. The rule requires various documentation regarding the history of construction, operations and design of various structures. He directed hydraulic capacity and safety factor assessments.

Guidance Documents for USEPA Coal Combustion Residual Rules, Electric Power Research Institute, Palo Alto, California. Mr. Bozok was a key member of the team and prepared various templates for EPRI members. Project involved preparing a series of guidance documents for utility companies that manage coal combustion residuals to meet USEPA CCR Rules. Mr. Bozok prepared templates for emergency action plans, onsite inspections and training module for inspectors.