



2022 Annual Inspection Report

For Compliance with the EPA Coal Combustion Residuals (CCR) Rule
40 CFR §257.83(b)

Former B.C. Cobb Power Plant
Ponds 0-8 and Bottom Ash Pond

May 26, 2022

Prepared for:
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(MERG)
Muskegon, Michigan

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1 Introduction and Purpose

HDR MICHIGAN, Inc. (HDR) has prepared this 2022 Annual Inspection Report for Ponds 0-8 and Bottom Ash Pond at the Former B.C. Cobb Power Plant (B.C. Cobb) following the requirements of the Federal Coal Combustion Residuals (CCR) Rule to demonstrate compliance of the Former B.C. Cobb Power Plant in Muskegon, Michigan.

On April 17, 2015, the United States Environmental Protection Agency (EPA) issued the final rule (Ref. [3]) for disposal of Coal Combustion Residuals (CCR) under Subtitle D of the Resource Conservation and Recovery Act (RCRA). CCR Rule 40 CFR §257.73(b) requires that owners or operators of an existing CCR surface impoundment that either 1) has a height of five feet or more and a storage volume of 20 acre-feet or more; or 2) has a height of 20 feet or more perform periodic structural stability assessments (40 CFR §257.73(d)) and periodic safety factor assessments (40 CFR §257.73(e)).

Additionally, CCR Rule 40 CFR §257.83(b)(1) states that if the existing CCR surface impoundment is subject to the periodic structural stability assessment requirements under 40 CFR §257.73(d), then the impoundment must additionally be inspected on a periodic basis by a qualified professional engineer to ensure that the design, construction, operation, and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering standards. This report presents the 2022 Annual Inspection for Ponds 0-8 and Bottom Ash Pond.

The 2022 Annual Inspection Report presented herein addresses the specific requirements of 40 CFR §257.83(b). This Annual Inspection Report was prepared by Mr. Bryce Burkett, P.E., and was reviewed in accordance with HDR's internal review policy by Ms. Lara Zawaideh, P.E., both of HDR. Mr. Burkett is a registered Professional Engineer in the State of Michigan.

1.1 Site Location

B.C. Cobb is a former electrical power generation facility located along North Causeway (M-120) in Muskegon, Michigan which was previously owned by Consumers Energy Company (CEC). The Muskegon Environmental Redevelopment Group, LLC (MERG) acquired the B.C. Cobb ponds in 2020 and has dewatered and removed CCR material from the ponds as part of pond remediation and closure efforts. The latitude and longitude of B.C. Cobb are approximately 43.254355 N and 86.241224 W. The site is located north of Muskegon, Michigan and south of the intersection of North Causeway (M-120) and the Muskegon River, as shown in the vicinity map, Figure 1.

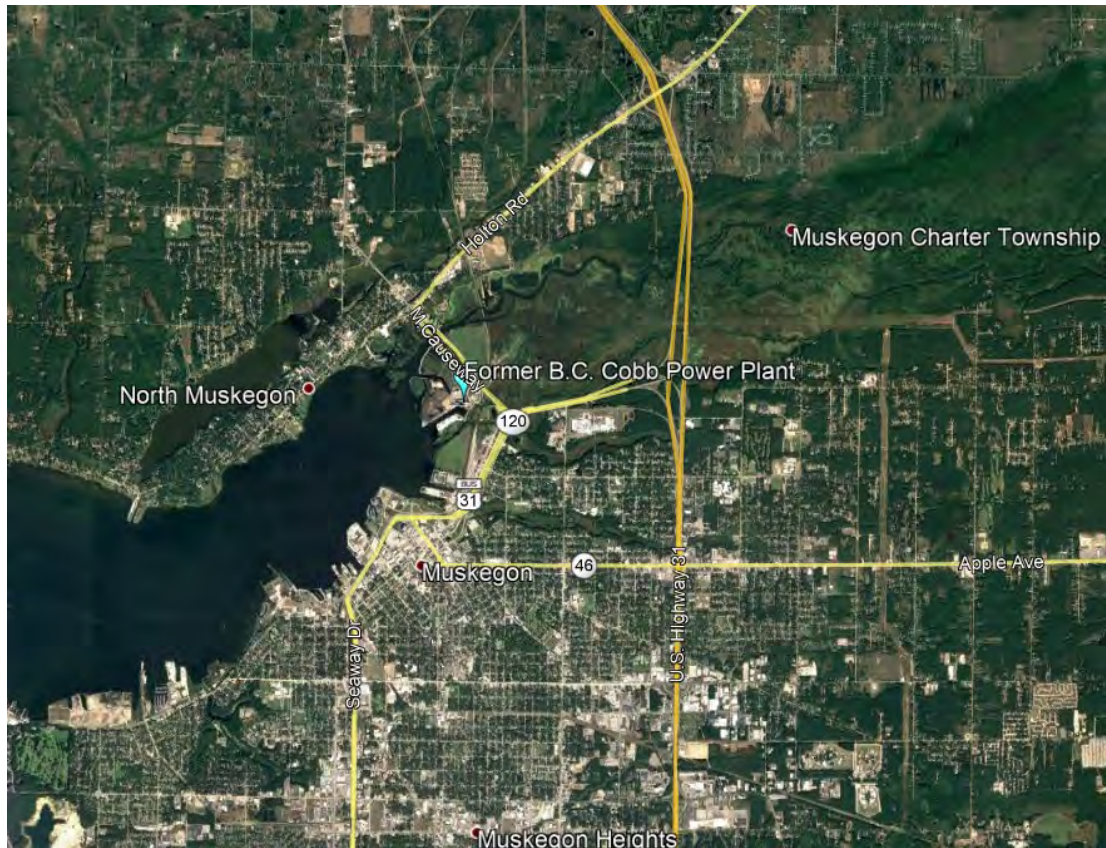


Figure 1. Site Vicinity Map

1.2 Site Description

B.C. Cobb began operations in the 1940s with five coal-burning units, later converting three of those units to natural gas until operations were ceased by CEC in 2016. The CCR unit, which includes Ponds 0-8 and the Bottom Ash Pond, were National Pollutant Discharge Elimination System (NPDES) treatment units. Historically, CCR was deposited in the ponds by utilizing sluicing methods. Bottom ash slurry was directed into the Bottom Ash Pond, with Bottom Ash Pond overflow directed into either Ponds 5 or 6. Fly ash from the power plant was directed into Ponds 7 and 8. The ponded CCR was routed through the remaining ponds in series. Each pond allowed a portion of CCR particles to settle out before the overflow was transferred to the next pond. The overflow from Pond 4 was discharged to a National Pollutant Discharge Elimination System (NPDES) outfall located on the Discharge Channel which consisted of a 24-inch diameter high density polyethylene (HDPE) pipe. The NPDES outfall was made inactive prior to the 2017 Annual Inspection (Ref. [7]) and portions were reportedly grouted (Ref. [8]). A portion of the NPDES outfall has since been reactivated to provide outflow for treated water during current excavation activities. Additionally, two 18-inch diameter HDPE outflow pipes also connected Pond 4 to the Discharge Channel to serve as emergency outflow pipes, which have also been decommissioned. Further details of the outfall structures are as discussed in Section 2.1.4.

The site is near several water bodies. The site is adjacent to the North Branch of the Muskegon River on the West Embankment, and the Veterans Memorial Pond is to the

northeast of the North Embankment. The Discharge Channel is adjacent to the South Embankment and discharges into the North Branch of the Muskegon River.

There are no available original construction documents detailing the existing subgrade or embankment information at the site. Based on prior subsurface investigations performed by Golder Associates, Inc. (Golder), the perimeter embankments (collectively referring to the South, West, and North Embankments in this report) are assumed to be constructed with standard earthwork equipment and compacted and/or proof rolled before subsequent lifts based on field geotechnical testing results. The foundation material consists of native sand underlain by silty clay (Ref. [6]).

MERG initiated closure of the ponds in 2020 by installing a soil-bentonite wall in the South and West embankments adjacent to the Discharge Channel and the North Branch of the Muskegon River, respectively, to promote dewatering activities. Dewatering began in July 2020 to prepare for excavation and removal of waste CCR. Ash removal began in August 2020 and was completed in May 2022. Currently, the interior embankments separating the ponds have been excavated, while the perimeter embankments are still in place adjacent to the Discharge Channel and the Muskegon River.

Figure 2 presents an aerial view of the CCR impoundment as of February 2022, displaying the ongoing excavation of Ponds 0-8 and the Bottom Ash Pond.



Figure 2. Aerial Image of Impoundment During Excavation

1.3 Previous Assessments and Inspections

In 2009 and 2012, AECOM performed Ash Dike Risk Assessments for the impoundment system. The previous assessments have been reviewed as part of this study. Additionally, Golder previously performed annual inspections for Ponds 0-8. The Bottom Ash Pond was exempt from the inspection due to the size requirements (Ref. [4]) detailed in CCR Rule 40 CFR §257.73(b). The annual inspections were performed in accordance with 40 CFR

§257.83(b), including a visual site inspection and associated reporting. The previous annual reports have been reviewed as part of this study.

Table 1-1 lists the previous reports which provide details of the annual inspections along with the date of the visual inspection.

Table 1-1. List of Previous Assessments and Inspections

| Document Name | Date of Inspection | Reference |
|--|--------------------|-----------|
| Inspection Report, B.C. Cobb Generating Facility, Ash Dike Risk Assessment, Muskegon, MI | August 28, 2009 | Ref. [1] |
| B.C. Cobb Ash Disposal Area, 2012 Ash Dike Risk Assessment, Final Inspection Report | May 24, 2012 | Ref. [2] |
| B.C. Cobb Ponds 0-8 Annual RCRA CCR Surface Impoundment Inspection Report - January 2016 | October 14, 2015 | Ref. [5] |
| B.C. Cobb Generating Facility, Pond 0-8 Structural Stability and Safety Factor Assessment Report | May 19, 2016 | Ref. [6] |
| B.C. Cobb Ponds 0-8 2017 Annual Surface Impoundment Inspection Report | May 17, 2017 | Ref. [7] |
| B.C. Cobb Ponds 0-8 2018 Annual Surface Impoundment Inspection Report | May 9, 2018 | Ref. [8] |
| B.C. Cobb Ponds 0-8 2019 Annual Surface Impoundment Inspection Report | May 21, 2019 | Ref. [9] |
| 2021 Annual Inspection Report, Former B.C. Cobb Power Plant Ponds 0-8 and Bottom Ash Pond | March 24, 2021 | Ref. [11] |

MERG performs daily visual inspections of the entire site as excavation is currently underway. The daily inspections are completed by qualified individuals to check for potentially hazardous conditions or structural weakness and the results of the inspections are documented internally on daily inspections forms.

There have been no reports of structural instability of the perimeter embankments during previous inspections.

2 Visual Inspection Observations

The visual inspection site visit was conducted on April 29, 2022, by Bryce Burkett, P.E. of HDR. The weather on March 24 was overcast and windy with temperature ranging from 40 to 50 degrees. No noticeable rainfall had occurred within the 24 hours prior to the inspection.

The visual inspection was conducted in accordance with the CCR Final Rule to identify signs of distress or malfunction of the CCR unit and appurtenant structures and consisted of observations of features and conditions readily discernible by external visual inspection through reasonable efforts. Relevant photographs with the corresponding photograph locations are provided in Appendix A and the Inspection Checklist Form is provided in Appendix B. A discussion of the embankment conditions is presented in the following

subsections and the terminology describing the embankment sections is shown in Figure 3.



Figure 3. B.C. Cobb Site Terminology

2.1.1 South Embankment

The South Embankment separates the impoundment to the north and the Discharge Channel to the south. The South Embankment appeared to be in good condition (Photos 6, 7, and 8) and no evidence of movement, settlement, cracking, distress, erosion, seepage, animal burrows, or other adverse conditions was observed in the crest and interior and exterior slopes, except as noted herein.

- The crest of the embankment consisted of a gravelly/soil surface (Photos 7 and 8). Minor rutting of the crest was observed but the crest was in good condition.
- Rip-rap protects the exterior slope in one area near the outflow (Photo 10) due to previous erosion repair, which was in good condition.
- Vegetation has become overgrown on the exterior slope (Photos 8 and 10).

- Minor sloughing and rills have occurred at the base of the interior slope due to on-going dewatering and excavation activities.

There were no other significant observations.

2.1.2 West Embankment

The West Embankment separates the impoundment to the east and the Muskegon River to the west. The West Embankment appeared to be in good condition (Photos 3, 4, 5, and 6) and no evidence of movement, settlement, cracking, distress, erosion, seepage, animal burrows or other adverse conditions was observed in the crest and interior and exterior slopes, except as noted herein.

- Rip-rap protects the exterior slope (Photo 5), which was in good condition.
- Some minor vegetation overgrowth was observed on the exterior slope (Photo 5).

There were no other significant observations.

2.1.3 North Embankment

The North Embankment separates the impoundment to the south and the North Causeway (M-120) and Muskegon Lakeshore Trail to the north. The North embankment is currently not adjacent to water on either the interior or exterior. The North Embankment appeared to be in good condition (Photos 1, 2, and 3) and no evidence of movement, settlement, cracking, distress, erosion, seepage, animal burrows or other adverse conditions was observed in the crest and interior and exterior slopes, except as noted herein.

- Sloughing and rills were present on the interior embankment due to on-going excavation activities.
- Shallow excavation has occurred in two areas along the crest to provide access for the dewatering pipe.
- Vegetation overgrowth was observed on the exterior slope.

There were no other significant observations.

2.1.4 Intake/Outlet Structures

The intake structures into Ponds 5, 6, and 8 are inactive and there is no inflow of water or CCR into the impoundment.

Prior to decommissioning the impoundment system, the pond network discharged from Pond 4 through the South Embankment via one 24-inch diameter HDPE outflow pipe to the permitted NPDES outflow (Photo 10) which was installed with a concrete headwall and endwall. The NPDES outflow was made inactive prior to the 2017 Annual Inspection (Ref. [7]).

During the installation of the soil-bentonite wall, the portion of the NPDES outflow pipe towards the interior of the site was removed and the outfall on the exterior of the site (between the Discharge Channel and the soil-bentonite wall) was kept active and connected to the dewatering system to discharge treated water to the Discharge Channel.

Additionally, two HDPE outflow pipes (18-inch diameter) also connected Pond 4 to the Discharge Channel to serve as emergency outflow pipes that extend through the South Embankment. The portions of these pipes between the soil-bentonite wall and the Discharge Channel have been grouted and the portions of the pipes on the interior side of the soil-bentonite wall have been removed.

There was no evidence of settlement, sinkholes, or cracking in the area of the embankment above the pipes extending through the South Embankment.

3 40 CFR §257.83(b)(2) Reporting

The requirements to be documented in the Inspection Report for existing CCR surface impoundments are detailed in 40 CFR §257.83(b): *Annual inspections by a qualified professional engineer*. As discussed in Section 2, the visual inspection site visit was conducted on April 29, 2022, by Bryce Burkett, P.E. of HDR. CCR Rule 40 CFR §257.83(b)(2) states that the inspection report must address items 40 CFR §257.83(b)(2)(i) through 40 CFR §257.83(b)(2)(vii). Details of the 2022 Annual Inspection addressing those items are presented below:

§257.83 (b)(2)(i): Any changes in geometry of the impounding structure since the previous annual inspection.

The site has changed since the 2021 Annual Inspection. As discussed in Section 1.2, the site has been dewatered and CCR has been excavated and removed in accordance with the Closure Work Plan. The interior embankments separating the former ponds have been completely excavated, while the perimeter embankments remain in place. The perimeter embankments have also changed in geometry in accordance with the grading details of the Closure Work Plan. Additionally, drainage channels have been constructed at various locations in the interior of the site to promote dewatering activities.

The perimeter embankments are still in place with top of crest elevations ranging from El. 585 feet to 590 feet

§257.83 (b)(2)(ii): The location and type of existing instrumentation and the maximum recorded readings of each instrument since the previous annual inspection.

The certified monitoring network at B.C. Cobb currently consists of 27 monitoring wells at various locations across the site as shown on Figure 2 in HDR 2022 (Ref. [10]). Table 3-1 provides details for the monitoring wells installed in the vicinity of the impoundment system including the maximum groundwater elevations recorded during two semi-annual sampling events in 2021 (April and October) and one semi-annual sampling event in 2022 (May).

Table 3-1. Monitoring Well Details

| Well | Elevation (TOC) (feet AMSL ¹) | Depth of Screen (feet) | Max. Static Water Elevation (feet AMSL ¹) |
|----------|---|------------------------|---|
| MW-15001 | 586.52 | 10-20 | 580.29 |

Table 3-1. Monitoring Well Details

| Well | Elevation (TOC) (feet AMSL ¹) | Depth of Screen (feet) | Max. Static Water Elevation (feet AMSL ¹) |
|---|---|------------------------------|--|
| MW-15002 | 586.87 | 15-20 | 580.69 |
| MW-15003 | 587.12 | 13-18 | 580.98 |
| MW-15004 | 590.57 | 5-15 | 581.16 |
| MW-15005 | 587.77 | 5-15 | 581.23 |
| MW-15006 | 587.81 | 5-15 | 581.37 |
| MW-15007 | 587.43 | 4-10 | 580.83 |
| MW-15008 | 587.76 | 4-9 | 581.04 |
| MW-15009 | 589.27 | 14-24 | 580.12 |
| MW-15010 | 588.11 | 12-22 | 580.31 |
| MW-15011 ² | 595.22 | 21-31 | 579.77 |
| MW-15013 | 590.00 | 30-40 | 579.40 |
| MW-15014 ³ | 586.68 | 23-31 | 577.58 |
| MW-15014R | 589.52 | 23-31 | 573.01 |
| MW-15015R | 586.52 | 20-30 | 574.17 |
| MW-15016R | 586.62 | 35-40 | 578.04 |
| MW-15017 | 588.61 | 35-40 | 579.21 |
| MW-15018 | 592.43 | 37.5-42.5 | 578.92 |
| MW-15019 | 592.42 | 37-42 | 578.78 |
| MW-15020 | 592.23 | 35-40 | 579.33 |
| MW-15021 | 593.73 | 39.5-42.5 | 575.09 |
| MW-15022 | 595.82 | 24-30 | 577.67 |
| MW-15023 | 588.08 | 12-19.5 | 574.83 |
| MW-17001R | 586.61 | 15-20 | 573.96 |
| MW-17002 | 588.79 | 13.5-18.5 | 574.08 |
| MW-17003 | 592.37 | 17-22 | 573.86 |
| MW-17004 | 591.84 | 17.5-22.5 | 573.88 |
| MW-17005 | 592.42 | 20-25 | 575.29 |
| MW-17006 | 593.78 | 24.5-29.5 | 574.97 |
| <ol style="list-style-type: none"> 1. Above mean sea level. 2. MW-15011 was abandoned February 1, 2022 3. MW-15014 was abandoned and replaced with MW-15014R on February 1, 2022 | | | |

No other instrumentation is present at the site for monitoring the structural stability of the impoundment.

§257.83 (b)(2)(iii): The approximate minimum, maximum, and present depth and elevation of the impounded water and CCR since the previous annual inspection.

Dewatering has been ongoing since excavation activities began, with the site being mostly free of impounded water. Within the previous two months of this inspection, several dewatering wells were offline, and water has recently ponded in the excavation, while also being maintained at a lowered level. At the time of the inspection, the water level in the impoundment was at approximately El. 574 and only present on the western portion of the site, whereas the eastern portion of the site remained dry. The depth of water in the western portion of the site ranged from approximately 1 to 5 feet. CCR removal activities were approaching completion and amounts of CCR within the impoundment were minimal.

§257.83 (b)(2)(iv): The storage capacity of the impounding structure at the time of the inspection.

The impoundment system is currently partially dewatered and undergoing excavation. Storage capacity as of the 2019 Annual Inspection was reported as 562,000 cubic yards (Ref. [9]).

§257.83 (b)(2)(v): The approximate volume of the impounded water and CCR at the time of the inspection.

Dewatering has been ongoing since excavation activities began, with the site being mostly free of impounded water. Within the previous two months of this inspection, several dewatering wells were temporarily offline, and water has recently ponded in the excavation. At the time of the inspection, approximate volume of water currently in the excavation was 750,000 cubic feet.

As of the time of this inspection, CCR has been removed from the excavation and construction is nearing completion.

§257.83 (b)(2)(vi): Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit and appurtenant structures.

Based on visual observations made during the site visit, no apparent or potential structural weakness were observed.

§257.83 (b)(2)(vii): Any other change(s) which may have affected the stability or operation of the impounding structure since the previous annual inspection.

The site has been vastly excavated and construction is nearing completion. The change in geometry of the site could affect the stability of the perimeter embankments. In order to remediate the risk of stability issues, geotechnical design efforts were undertaken to prevent the potential for slope failure along the perimeter embankments.

Prior to commencing dewatering and excavation, a soil-bentonite cutoff wall was installed through the South and West Embankments adjacent to the Discharge Channel and Muskegon River to promote the dewatering efforts within the interior of the site. Additionally, extensive slope stability analyses were performed to assess the changing

conditions of the South and West Embankments during excavation. Groundwater elevation action levels were also established to maintain structural stability of the slopes during dewatering.

4 Closure

Based on the information provided to HDR by MERG, information available on the MERG and Consumer Energy's CCR website, and HDR's visual observations and analyses, this 2022 Annual Inspection was conducted in accordance with the requirements of the USEPA 40 CFR Parts 257 and 261 Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule, April 17, 2015 (CCR Final Rule). Based on the information currently available, I certify to the best of my knowledge, information and belief that this Annual Inspection of Ponds 0-8 and Bottom Ash Pond meets the requirements of CCR Rule §257.83(b) in accordance with professional standards of care for similar work.



Bryce Burkett, P.E.
Senior Geotechnical Project Manager



26 May 2022

5 References

- Ref. [1]* AECOM. Inspection Report, B.C. Cobb Generating Facility, Ash Dike Risk Assessment, Muskegon, MI. December 8, 2009.
- Ref. [2]* AECOM. B.C. Cobb Ash Disposal Area, 2012 Ash Dike Risk Assessment, Final Inspection Report. July 2012.
- Ref. [3]* Environmental Protection Agency, 40 CFR Parts §257 and 261; Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule, Washington D.C., April 2015.
- Ref. [4]* Consumers Energy Company. B.C. Cobb History of Construction Ponds 0-8. October 17, 2016.
- Ref. [5]* Golder Associates, Inc. B.C. Cobb Generating Facility, Ponds 0-8, Annual RCRA CCR Surface Impoundment Inspection Report, January 15, 2016.
- Ref. [6]* Golder Associates, Inc. B.C. Cobb Generating Facility, Ponds 0-8, Structural Stability and Safety Factor Assessment Report, October 14, 2016.
- Ref. [7]* Golder Associates, Inc. B.C. Cobb Generating Facility, Ponds 0-8, 2017 Annual Surface Impoundment Inspection Report, October 12, 2017.
- Ref. [8]* Golder Associates, Inc. B.C. Cobb Generating Facility, Ponds 0-8, 2018 Annual Surface Impoundment Inspection Report, October 15, 2018.
- Ref. [9]* Golder Associates, Inc. B.C. Cobb Generating Facility, Ponds 0-8 2019 Annual Surface Impoundment Inspection Report, October 10, 2019.
- Ref. [10]* HDR Michigan, Inc. 2021 Annual Groundwater Monitoring and Corrective Action Report and Semi-Annual Remedy Selection and Design Progress Report, January 31, 2022.
- Ref. [11]* HDR Michigan, Inc. 2021 Annual Inspection Report, Former B.C. Cobb Power Plant Ponds 0-8 and Bottom Ash Pond, May 26, 2021.





6 Appendices


- | | |
|------------|------------------------|
| Appendix A | Site Visit Photographs |
| Appendix B | Inspection Checklist |

APPENDIX A
SITE VISIT PHOTOGRAPHS

| Client Name: | Site Location: | Photographic Log |
|--|--|--|
| Muskegon Environmental Redevelopment Group, LLC (MERG) | Ponds 0-8 and Bottom Ash Pond Former B.C. Cobb Power Plant Muskegon, Michigan | Project No. 10220433 Date: April 29, 2022 |
| | | |
| Photograph No. 1 |  | |
| Description: Interior slope of North Embankment. Note temporary dewatering system in place. | | |
|  | | |
| Photograph No. 2 |  | |
| Description: Interior slope of North Embankment. Note temporary dewatering system in place. | | |
|  | | |

| Client Name: | Site Location: | Photographic Log |
|---|---|--|
| Muskegon Environmental Redevelopment Group, LLC (MERG) | Ponds 0-8 and Bottom Ash Pond Former B.C. Cobb Power Plant Muskegon, Michigan | Project No. 10220433 Date: April 29, 2022 |
| <div data-bbox="222 426 466 464">Photograph No. 3</div> <div data-bbox="126 468 558 657"> <p>Description: Interior northwest of excavation, Muskegon River to the top right of photo. Large stone placed on right of photo to protect monitoring wells.</p> </div> <div data-bbox="131 716 558 1083">  </div> | | |
| <div data-bbox="222 1169 466 1207">Photograph No. 4</div> <div data-bbox="126 1211 558 1339"> <p>Description: Interior slope of West Embankment adjacent to Muskegon River.</p> </div> <div data-bbox="131 1461 558 1822">  </div> | | |
|  | | |
|  | | |

| Client Name: | Site Location: | Photographic Log |
|---|--|--|
| Muskegon Environmental Redevelopment Group, LLC (MERG) | Ponds 0-8 and Bottom Ash Pond Former B.C. Cobb Power Plant Muskegon, Michigan | Project No. 10220433 Date: April 29, 2022 |
| | | |
| Photograph No. 5 |  | |
| Description: Exterior slope of West Embankment adjacent to Muskegon River. Note vegetation on exterior slope. | | |
|  | | |
| Photograph No. 6 |  | |
| Description: Interior slope of South Embankment adjacent to Discharge Channel. Note rip-rap protected monitoring wells at top left of photo. | | |
|  | | |

| Client Name: | Site Location: | Photographic Log |
|--|--|--|
| Muskegon Environmental Redevelopment Group, LLC (MERG) | Ponds 0-8 and Bottom Ash Pond Former B.C. Cobb Power Plant Muskegon, Michigan | Project No. 10220433 Date: April 29, 2022 |
| | | |
| Photograph No. 7 |  | |
| Description: Interior slope of South Embankment adjacent to Discharge Channel. | | |
|  | | |
| Photograph No. 8 |  | |
| Description: Crest of South Embankment adjacent to Discharge Channel. Note vegetation on exterior slope. | | |
|  | | |

| Client Name: | Site Location: | Photographic Log |
|---|--|--|
| Muskegon Environmental Redevelopment Group, LLC (MERG) | Ponds 0-8 and Bottom Ash Pond Former B.C. Cobb Power Plant Muskegon, Michigan | Project No. 10220433 Date: April 29, 2022 |
| | | |
| Photograph No. 9 |  | |
| Description: Dewatering inlet in crest of South Embankment connecting to NPDES outfall. Connection appeared in good condition. | | |
|  | | |
| Photograph No. 10 |  | |
| Description: NPDES outflow on exterior slope of South Embankment adjacent to Discharge Channel. Low flow of treated water exiting outflow. | | |
|  | | |

APPENDIX B

INSPECTION CHECKLIST



| | | | |
|--|---|------|-------------|
| Site Name: Former B.C. Cobb Power Plant | Date: April 29, 2022 | | |
| Unit Name: Ponds 0-8 and Bottom Ash Pond | Operator's Name: Muskegon Environmental Redevelopment Group, LLC (MERG) | | |
| Unit I.D.: N/A | Hazard Potential Classification: | High | Significant |
| Inspector's Name: Bryce Burkett, P.E. | | | |

Check the appropriate box below. Provide comments when appropriate. If not applicable or not available, record "N/A". Any unusual conditions or construction practices that should be noted in the comments section. For large diked embankments, separate checklists may be used for different embankment areas. If separate forms are used, identify approximate area that the form applies to in comments.

| | Yes | No | | Yes | No |
|---|-----|----------|---|-----|-----|
| 1. Frequency of Company's Dam Inspections? | | Daily | 18. Sloughing or bulging on slopes? | | X |
| 2. Pool elevation (operator records)? | | N/A | 19. Major erosion or slope deterioration? | | X |
| 3. Decant inlet elevation (operator records)? | | N/A | 20. Decant Pipes: | | |
| 4. Open channel spillway elevation (operator records)? | | N/A | Is water entering inlet, but not exiting outlet? | | No |
| 5. Lowest dam crest elevation (operator records)? | | 586.0 ft | Is water exiting outlet, but not entering inlet? | | No |
| 6. If instrumentation is present, are readings recorded (operator records)? | X | | Is water exiting outlet flowing clear? | | Yes |
| 7. Is the embankment currently under construction? | | X | 21. Seepage (specify location, if seepage carries fines, and approximate seepage rate below): | | |
| 8. Foundation preparation (remove vegetation, stumps topsoil in area where embankment fill will be placed)? | | N/A | From underdrain? | | X |
| 9. Trees growing on embankment? (If so, indicate largest diameter below) | X | | At isolated points on embankment slopes? | | X |
| 10. Cracks or scarps on crest? | | X | At natural hillside in the embankment area? | | X |
| 11. Is there significant settlement along the crest? | | X | Over widespread areas? | | X |
| 12. Are decant trashracks clear and in place? | | N/A | From downstream foundation area? | | X |
| 13. Depressions or sinkholes in tailings surface or whirlpool in the pool area? | | N/A | "Boils" beneath stream or ponded water? | | X |
| 14. Clogged spillways, groin or diversion ditches? | | X | Around the outside of the decant pipe? | | X |
| 15. Are spillway or ditch linings deteriorated? | | N/A | 22. Surface movements in valley bottom or on hillside? | | X |
| 16. Are outlets of decant or underdrains blocked? | | N/A | 23. Water against downstream toe? | X | |
| 17. Cracks or scarps on slopes? | | X | 24. Were Photos taken during the dam inspection? | X | |

Major adverse changes in these items could cause instability and should be reported for further evaluation. Adverse conditions noted in these items should normally be described (extent, location, volume, etc.) in the space below and on the back of this sheet.

Inspection Item #

Comments

1. Daily inspections performed by MERG staff.
2. All ponds are actively being dewatered. Water ponding in areas of bottom of excavation at approximately El. 574
6. Monitoring well readings collected by MERG.
9. Trees growing along waterside of south embankment. Largest diameter approx. 3-inches.
17. Rills from erosion are present due to weather events and ongoing excavation of ponds.
20. Low flow observed at outlet is from dewatering system.
23. The Muskegon River and the Discharge Channel border the west and south embankments.

**Coal Combustion Waste (CCW)
Impoundment Inspection**Impoundment NPDES Permit# MI0060248 -
Outfall 001INSPECTOR Bryce Burkett, P.E.Date: April 29, 2022Impoundment Name: B.C. Cobb Ponds 0-8 and Bottom Ash PondImpoundment Company: Muskegon Environmental Redevelopment Group, LLC (MERG)EPA Region: 5

State Agency (Field Office) Address _____

Name of Impoundment B.C. Cobb Ponds 0-8 and Bottom Ash Pond
(Report each impoundment on a separate form under the same Impoundment NPDES Permit number)New x Update _____

| | Yes | No |
|--|----------|----------|
| Is impoundment currently under construction? | <u>x</u> | _____ |
| Is water or ccw currently being pumped into the impoundment? | _____ | <u>x</u> |

IMPOUNDMENT FUNCTION: Currently inactive and undergoing closureNearest Downstream Town: Muskegon, MichiganDistance from the impoundment: 0 miles

Impoundment

Location: Longitude 43 Degrees 16 Minutes 15.68 Seconds
Latitude 86 Degrees 14 Minutes 28.41 Seconds
State MI County MuskegonDoes a state agency regulate this impoundment? YES X NO _____If So, Which State Agency? Michigan Department of Environment, Great Lakes, and Energy (EGLE)

HAZARD POTENTIAL (In the event the impoundment should fail, the following would occur):

LESS THAN LOW HAZARD POTENTIAL: Failure or misoperation of the dam results in no probable loss of human life or economic or environmental losses.

LOW HAZARD POTENTIAL: Dams assigned the low hazard potential classification are those where failure or misoperation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the owner's property.

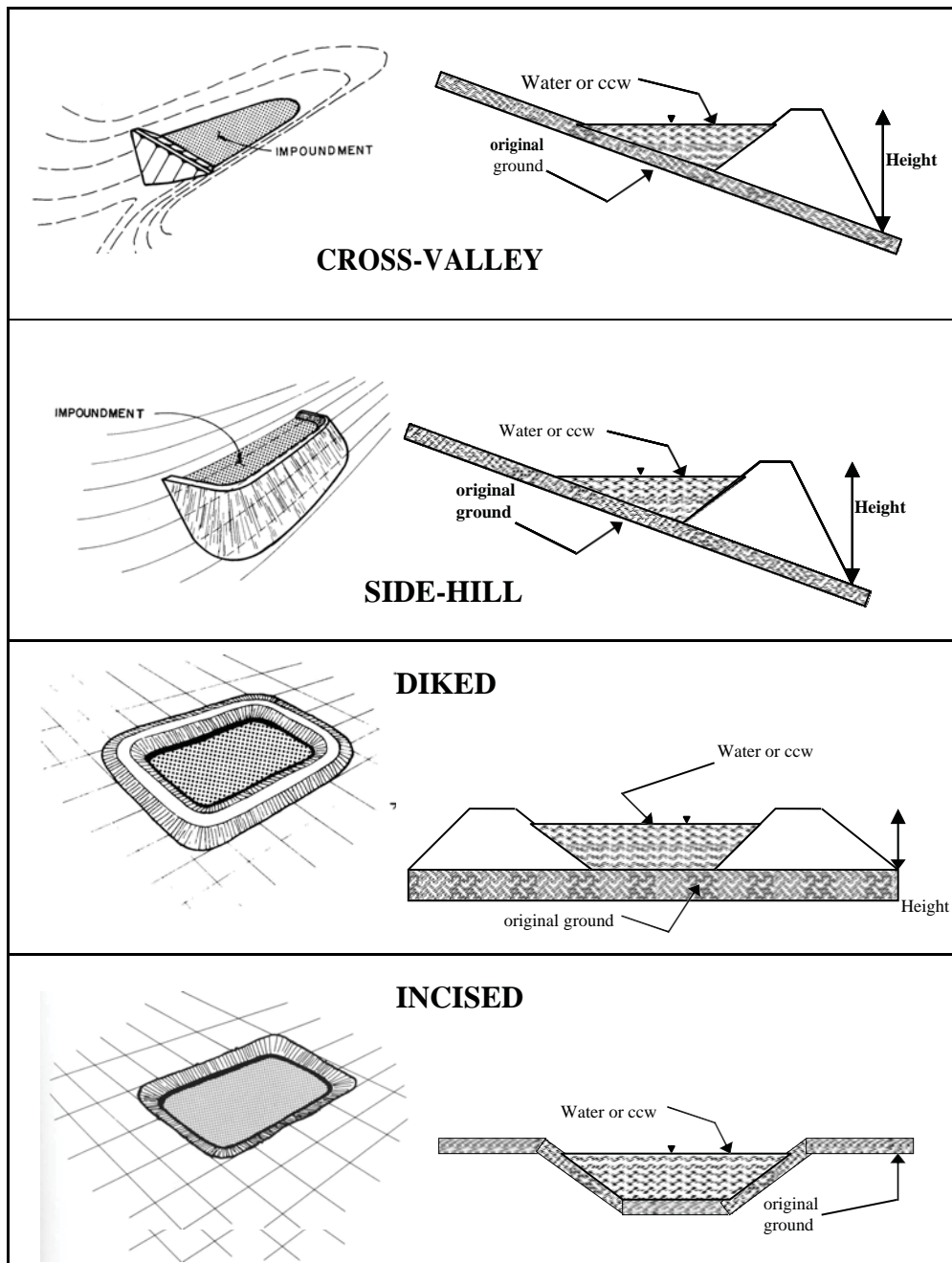
X SIGNIFICANT HAZARD POTENTIAL: Dams assigned the significant hazard potential classification are those dams where failure or misoperation results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or can impact other concerns. Significant hazard potential classification dams are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure.

HIGH HAZARD POTENTIAL: Dams assigned the high hazard potential classification are those where failure or misoperation will probably cause loss of human life.

DESCRIBE REASONING FOR HAZARD RATING CHOSEN:

Referring to the Hazard Classification completed by Golder Associates (2016):
"dike failure or mis-operation would result in a discharge of CCR from the dike and the surface impoundment into Muskegon Lake. No probable loss of human life is expected, but the dike failure may cause environmental damage that would not be limited to the surface impoundment owner's property."

CONFIGURATION:



☐ Cross-Valley
☐ Side-Hill
☒ Diked
☐ Incised (form completion optional)
☐ Combination Incised/Diked
 Embankment Height 10-12 feet Embankment Material: Sand/CCR
 Pool Area N/A acres Liner: No
 Current Freeboard N/A feet Liner Permeability: N/A

TYPE OF OUTLET (Mark all that apply)

N/A **Open Channel Spillway**

 Trapezoidal

 Triangular

 Rectangular

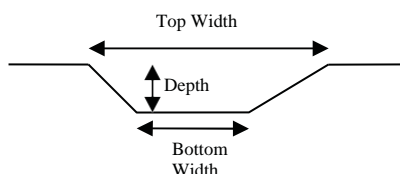
 Irregular

 depth

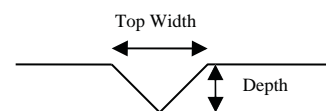
 bottom (or average) width

 top width

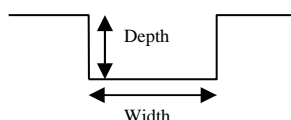
TRAPEZOIDAL



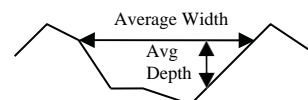
TRIANGULAR



RECTANGULAR



IRREGULAR



 1 **Outlet**

 24-in **Inside Diameter**

Material

 corrugated metal

 welded steel

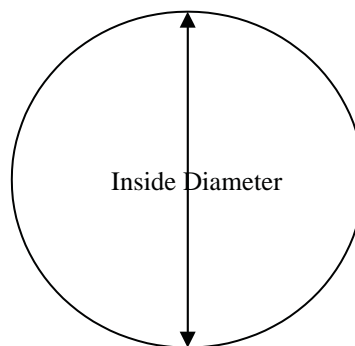
 concrete

 X plastic (hdpe, pvc, etc.)

 other (specify) _____

Is water flowing through the outlet? YES X NO _____

Partial flow through outlet from dewatering system.



 No Outlet (Note: Outlet is inactive due to closure)

 Other Type of Outlet (specify) _____

The Impoundment was Designed By: Unknown

Has there ever been any measures undertaken to monitor/lower Phreatic water table levels based on past seepages or breaches at this site?

| | | |
|-----|----|---|
| YES | NO | x |
|-----|----|---|

If so, which method (e.g., piezometers, gw pumping,...)? _____

If so Please Describe : _____

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.