

2018 CCR Location Restrictions

- **Engineer's Certification of Fault Area Demonstration for CCR Holding Pond, EPA Final CCR Rule, Shiras Steam Plant, Marquette, MI**

Page 1

- **Engineer's Certification of Placement Above the Uppermost Aquifer Demonstration for CCR Holding Pond, EPA Final CCR Rule, Shiras Steam Plant, Marquette, MI**

Page 3

- **Engineer's Certification of Seismic Impacted Zone Demonstration for CCR Holding Pond, EPA Final CCR Rule, Shiras Steam Plant, Marquette, MI**

Page 5

- **Engineer's Certification of Unstable Area Demonstration for CCR Holding Pond, EPA Final CCR Rule, Shiras Steam Plant, Marquette, MI**

Page 6

- **Engineer's Certification of Wetlands Demonstration for CCR Holding Pond, EPA Final CCR Rule, Shiras Steam Plant, Marquette, MI**

Page 7

October 17, 2018

AECOM Project No.
60445171

Marquette Board of Light and Power
2200 Wright Street
Marquette, Michigan 49855

Engineer's Certification of Fault Area Demonstration for CCR Holding Pond, EPA Final CCR Rule, Shiras Steam Plant, Marquette, Michigan

1. Purpose

The purpose of this document is to certify that the Fault Area Demonstration for the MBLP Shiras Steam Plant Holding Pond is in compliance with the Fault location requirements specified in the Final CCR Rule at 40 CFR §257.62. Presented below is the project background, summary of findings, limitations and certification.

2. Background

During active fault movement, earth displacement where the ground may be bent or warped typically occurs within a zone spanning 200 feet from the fault line. In accordance with 40 CFR §257.62(a), all new CCR landfills, new and existing CCR impoundments, and all lateral expansions must not be located within 60 meters (200 feet) of the outermost danger zone created by faults active during the Holocene Period unless the unit meets certain requirements. The Holocene Period is defined by any geologic event occurring within the past 11,700 years; the time span indicating that a fault is active.

3. Summary of Findings

MBLP Shiras Steam Plant is located between two unnamed subparallel, east-west trending faults. The unnamed fault systems are located at 1.5 miles to the south, and 2.9 miles to the north of the location of the MBLP Shiras Steam Plant. Based on a review of the USGS website which contains information on faults and associated folds in the United States that are believed to be sources of M>6 earthquakes during the Quaternary Period (the past 1,600,000 years, including Holocene Epoch), there are no known faults of this age located within the vicinity of plant. The borings performed by AECOM in 2018 did not encounter conditions indicative of faulting. As such, no evidence of significant faulting has been observed at the plant site. Furthermore, both fault zones exceed the 200 foot offset.

Based upon a review of the documented sources as presented above, fault lines in relation to the Holding Pond have not been active during the Holocene Period and are not within the specified 200 foot fault damage zone. AECOM has determined that the Holding Pond at MBLP Shiras Steam Plant meets the fault area requirements of the EPA Final CCR Rule 40 CFR §257.62. AECOM has determined that there are no reasonable expectations that faults will disrupt the integrity of the Holding Pond due to fault movement.

4. Certification

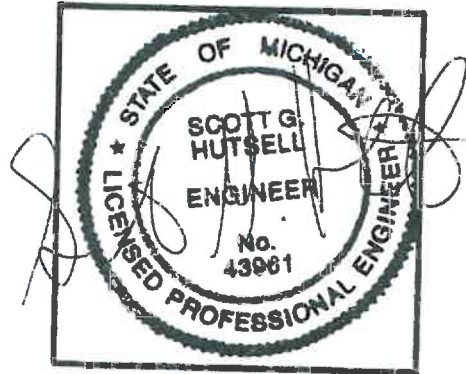
I, Scott G. Hutsell, being a Registered Professional Engineer in good standing in the State of Michigan, do hereby certify, to the best of my knowledge, information, and belief, that the information contained in this certification has been prepared in accordance with the accepted practice of engineering and that the information contained herein is accurate as of the date of my signature below. I further certify, for the above-referenced CCR Unit, that the Fault Area Demonstration for CCR dated October 17, 2018 meets the requirements of 40 CFR § 257.62(a).

Scott G. Hutsell

Printed Name

10/17/18

Date



October 17, 2018

AECOM Project No.
60445171

Marquette Board of Light and Power
2200 Wright Street
Marquette, Michigan 49855

Engineer's Certification of Placement Above the Uppermost Aquifer Demonstration for CCR Holding Pond, EPA Final CCR Rule, Shiras Steam Plant, Marquette, Michigan

1. Purpose

The purpose of this demonstration is to document compliance with 40 §CFR 257.60 of the Environmental Protection Agency Final Coal Combustion Residual Rule (EPA Final CCR Rule). This Placement Above the Uppermost Aquifer Demonstration is based on existing documentation such as construction drawings, record drawings, and any other pertinent data and/or investigations to support historic conditions and operations at the Holding Pond at the Marquette Board of Light and Power (MBLP) Shiras Steam Plant.

2. Background

According to 40 CFR §257.60(a) of the EPA Final CCR Rule, any new CCR landfills, existing and new CCR surface impoundments, and all lateral expansions of CCR units must be constructed with a base that is located no less than 1.52 meters (five feet) above the upper limit of the uppermost aquifer, or must demonstrate that there will not be an intermittent, recurring, or sustained hydraulic connection between any portion of the base of the CCR unit and the uppermost aquifer due to normal fluctuations in groundwater elevation (including the seasonal high water table). The "uppermost aquifer" is defined by 40 CFR §257.40 as the geologic formation nearest the natural ground surface that is an aquifer, as well as lower aquifers that are hydraulically interconnected with this aquifer within the facility's property boundary. This definition includes a shallow, deep, perched, confined or unconfined aquifer, provided it yields usable water.

3. Summary of Findings

The Holding Pond at MBLP Shiras Steam Plant is located within Lake Superior, and the bottom elevation of the Holding Pond is below the normal water elevation of the Lake Superior. Furthermore, groundwater elevations collected by AECOM in 2017 indicate that ground water elevation across the Holding Pond is approximately 609 feet MSL (IGLD85) upgradient (southwest) side of the Pond, to 606 feet MSL (IGLD85) downgradient (northeast) side of the Pond.

Based on groundwater data, geotechnical analyses, and examination of site geology and hydrogeology, the Holding Pond will not meet the requirements of 40 CFR §257.60(a), as the unit does not meet the 5 foot minimum required separation between the base of the unit and the upper limit of the uppermost aquifer, as specified in 40 CFR §257.60(a).

4. Limitations

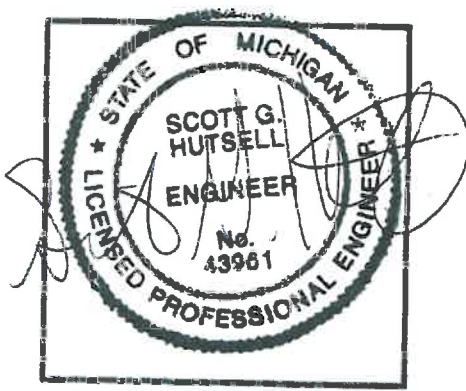
The signature of AECOM's authorized representative on this document represents that to the best of AECOM's knowledge, information and belief in the exercise of its professional judgment, it is AECOM's professional opinion that the aforementioned information is accurate as of the date of such signature. Any recommendation, opinion, or decisions by AECOM are made on the basis of AECOM's experience, qualifications and professional judgment and are not to be construed as warranties or guaranties. In addition, opinions relating to environmental, geologic, and geotechnical conditions or other estimates are based on available data and actual conditions may vary from those encountered at the times and locations where data are obtained, despite the use of due care.

5. Qualified Professional Engineer Certification

I, Scott G. Hutsell, being a Registered Professional Engineer in good standing in the State of Michigan, do hereby certify, to the best of my knowledge, information, and belief, that the information contained in this certification has been prepared in accordance with the accepted practice of engineering. I certify, for the above-referenced CCR Unit, that the demonstration regarding the location of the base of the CCR Unit less than 1.52 meters above the upper limit of the uppermost aquifer does not meet the requirements of 40 CFR § 257.60(a).

Scott G. Hutsell
Printed Name

10/17/18
Date





AECOM
1230 Wilson Street
Marquette, MI 49855
aecom.com

October 17, 2018

AECOM Project No.
60445171

Marquette Board of Light and Power
2200 Wright Street
Marquette, Michigan 49855

Engineer's Certification of Seismic Impacted Zone Demonstration for CCR Holding Pond, EPA Final CCR Rule, Shiras Steam Plant, Marquette, Michigan

1. Purpose

The purpose of this document is to certify that the Seismic Impact Zone Demonstration for the MBLP Shiras Steam Plant Holding Pond is not located within a Seismic Impact Zone as specified in the Final CCR Rule at 40 CFR §257.63 presented below is the project background, summary of findings, limitations and certification.

2. Background

According to 40 CFR 267.63(a) of the EPA Final CCR Rule, any new CCR landfills, existing, and new CCR surface impoundments, and all lateral expansions of CCR units must not be located in seismic impact zones unless the owner or operator demonstrates that all structural components including liners, leachate collection and removal systems, and surface water control systems, are designed to resist the maximum horizontal acceleration in lithified earth material for the site.

3. Summary of Findings

Studies carried out by AECOM indicate that the Shiras Steam Plant is located in a region of low risk for earthquake, in which the earthquake peak ground acceleration (PGA) that has a 2% chance of being exceeded in 50 years has a value between 0.00 and 0.02g.

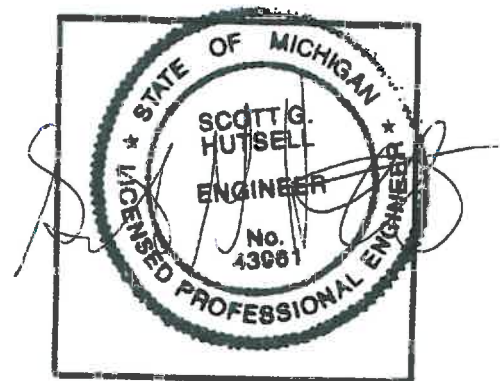
In accordance with §257.63 the results of the study performed on the existing holding pond have determined that the unit meets the appropriate Seismic Impact Zones requirements. The landfill structural components have been designed to resist the impact from the maximum horizontal acceleration in lithified earth material for the site without discharge of waste or contaminants.

4. Certification

I, Scott G. Hutsell, being a Registered Professional Engineer in good standing in the State of Michigan do hereby certify, to the best of my knowledge, information, and belief, that the information contained in this certification has been prepared in accordance with the accepted practice of engineering. I certify, for the above-referenced CCR Unit, that the demonstration regarding the location of the CCR Unit has been completed, the Unit is not located in a Seismic Impact Zone, and the Unit meets the requirements of 40 CFR § 257.63(a).

Scott G. Hutsell
Printed Name

10/17/18
Date



6



AECOM
1230 Wilson Street
Marquette, MI 49855
aecom.com

October 17, 2018

AECOM Project No.
60445171

Marquette Board of Light and Power
2200 Wright Street
Marquette, Michigan 49855

Engineer's Certification of Unstable Area Demonstration for CCR Holding Pond, EPA Final CCR Rule, Shiras Steam Plant, Marquette, Michigan

1. Purpose

The purpose of this document is to certify that the Unstable Areas Demonstration for the MBLP Shiras Steam Plant Holding Pond is in compliance with the unstable areas demonstration specified in the Final CCR Rule at 40 CFR §257.64. Pursuant to § 257.64(d)(1), the owner or operator of an existing CCR impoundment must complete the unstable areas location demonstration no later than October 17, 2018.

2. Background

According to 40 CFR 257.64(a) of the EPA Final CCR Rule, any existing or new CCR landfills, existing or new CCR surface impoundments, and all lateral expansions of CCR units must not be located in unstable areas zones unless the owner or operator demonstrates that all structural components including liners, leachate collection and removal systems, and surface water control systems, are designed to resist movement associated with instability of the ground.

3. Summary of Findings

Studies carried out by AECOM concluded that MBLP Shiras Steam Plant Holding Pond is not located in a region of historical underground mining activities, and is not within a region prone to karst and soil liquefaction. Furthermore, we concluded that the Holding Pond is not subjected to exceeding mass movement resulting from slope failures. AECOM has determined that the Holding Pond is not in an unstable areas as defined in the EPA Final CCR Rule 40 CFR §257.64.

4. Certification

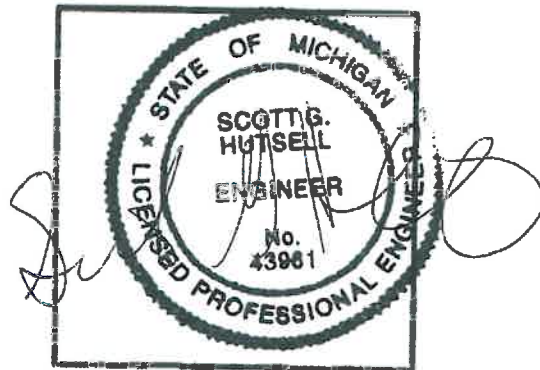
I, Scott G. Hutsell, being a Registered Professional Engineer in good standing in the State of Michigan, do hereby certify, to the best of my knowledge, information, and belief that the information contained in this certification has been prepared in accordance with the accepted practice of engineering and that the information contained herein is accurate as of the date of my signature below. I certify that the Unstable Area Demonstration for CCR, dated 10/17/18, for the above-referenced CCR Unit has been completed and the unit is not located in an unstable areas as defined in 40 CFR § 257.64(a).

Scott G. Hutsell

Printed Name

10/17/18

Date



October 17, 2018

Marquette Board of Light and Power
2200 Wright Street
Marquette, Michigan 49855

AECOM Project No.
60445171

Engineer's Certification of Wetlands Demonstration for CCR Holding Pond, EPA Final CCR Rule, Shiras Steam Plant, Marquette, Michigan

1. Purpose

The purpose of this document is to certify that the Unstable Areas Demonstration for the MBLP Shiras Steam Plant Holding Pond is in compliance with the Wetlands location requirements specified in the Final CCR Rule at 40 CFR §257.61. Presented below is the project background, summary of findings, limitations and certification.

2. Background

As required by 40 CFR §257.61 of the EPA Final CCR Rule, the owner or operator of any new CCR landfills, existing and new CCR surface impoundments, and all lateral expansions of CCR units must demonstrate that the units must not be located in wetlands, as defined in 40 CFR §232.2, unless the owner or operator demonstrates that the CCR unit meets the requirements of paragraphs 40 CFR §257.61(a)(1) through (a)(5).

3. Summary of Findings

A total of one (1) area was identified and delineated at the MBLP Shiras Steam Plant. The area is positioned on the west side of the holding pond, within the holding pond. Based on review of the documented sources as presented above, AECOM has concluded that MBLP Shiras Steam Plant Existing Holding Pond is not located in an area of existing wetlands. The wetland area identified onsite is a result of the lack of maintenance and dredging activities in the holding pond. The wetland area that has developed is very low quality, with stressed vegetation, likely due to the ash sedimentation that the vegetation is growing in. It appears that the low-quality wetland has developed as a lack of dredging of the holding pond. Furthermore, we conclude that the plant is not subject to adverse wetland impacts, as the wetland has developed in the CCR holding pond waters, and also not subject to the MDEQ § 324.30305(4)(b) regulations, and therefore not subject to regulation under Part 303.

AECOM has determined that the existing holding pond at MBLP Shiras Steam Plant meets the Wetland requirements of the EPA Final CCR Rule 40 CFR §257.61. AECOM has determined that there are no reasonable expectations that the CCR Holding Pond will adversely affect the wetland vegetation.

4. Certification

I, Scott G. Hutsell, being a Registered Professional Engineer in good standing in the State of Michigan, do hereby certify, to the best of my knowledge, information, and belief, that the information contained in this certification has been prepared in accordance with the accepted practice of engineering and that the information contained herein is accurate as of the date of my signature below. I further certify, for the above-referenced CCR Unit, that the demonstration regarding wetlands meets the requirements of 40 CFR § 257.61(a).

Scott G. Hutsell
Printed Name

10/17/18
Date

