GEI Consultants

Consulting
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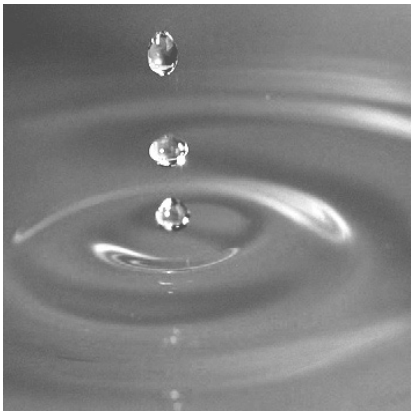
Closure Plan
Shiras Steam Plant Holding Pond

Marquette, Michigan

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

Submitted by:
GEI Consultants of Michigan P.C.
109 W. Baraga Avenue
Marquette, Michigan 49855

January 17, 2020
Project 1903625



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PROFESSIONAL ENGINEER CERTIFICATION

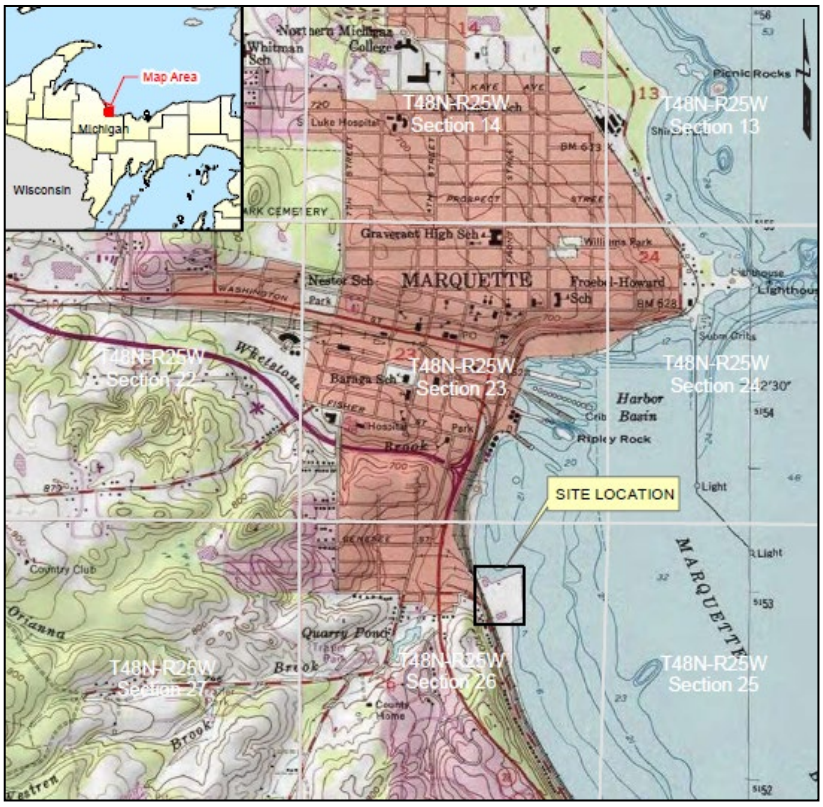
"I hereby certify that this Closure Plan for the Shiras Steam Plant Holding Pond owned and operated by the Marquette Board of Light and Power meets the requirements in federal regulation 40 CFR §257.102 in the Standards of Coal Combustion Residuals (CCR) in Landfills and Impoundments published April 17, 2015 pertaining to closure for existing CCR surface impoundments. I am a duly licensed Professional Engineer under the laws of the State of Michigan."

Sincerely,

Michael D. Carpenter, PE (MI No. 6201046532)

1. Introduction

The Marquette Board of Light and Power (MBLP) owns and has historically operated a fossil fuel fired electrical generating plant known as the Shiras Steam Plant (Plant) located at 400 East Hampton Street in Marquette, Michigan. The Plant was built in 1967 and consisted of three power generating units that have been removed from service and are currently undergoing decommissioning. The Plant has a single coal combustion residuals (CCR) Holding Pond that meets the criteria of a CCR surface impoundment per Part 257.2 of the CCR Rule. The Holding Pond (WDS ID# 478988) consists of five individual sluicing cells that are enclosed by sheet pile walls against the shoreline of Lake Superior. The Holding Pond operated as a zero-discharge CCR unit and, following sluicing through the five cells, contact water was recirculated back to the plant as process water or to a storage tank for future use. Since plant shutdown in June 2018, contact water has been pumped to the local sanitary sewer system.



1.1 Regulatory Requirement

The U.S. EPA published the Final Rule for the regulation and management of (CCR) on April 17, 2015 under RCRA 40 CFR Part 257. In accordance with Part 257.102(b), a written closure plan is required for future closure of CCR surface impoundments.

Based on the low volume of CCR material that will exist in the Holding Pond and its relatively small size, closure of the Holding Pond will occur by excavation and removal rather than close-in place methods. As such, applicable closure plan requirements for surface impoundments via removal must include the following:

- A narrative description of how the CCR unit will be closed;
- A description of the procedures to remove the CCR from the surface impoundment and decontaminate the unit including potentially affected soil below the unit;
- An estimate of the maximum inventory of CCR ever on-site over the active life of the CCR unit; and
- A schedule for completing all activities necessary to satisfy closure criteria.

A written post-closure care plan is not required for closure where CCR unit removal is the selected method of closure.

1.2 Extent of CCR and Estimate of CCR Maximum Inventory

All CCR is contained within the confines of Holding Pond. To estimate the maximum CCR inventory in the Holding Pond, design drawings were reviewed to establish the maximum amount of CCR ever present in the Holding Pond and the potential volume of CCR material that could be encountered during closure. It is estimated that the maximum amount of CCR historically present in the Holding Pond was 3,500 cubic yards. As of January 2020, approximately 2,200 cubic yards of CCR material were contained within the Holding Pond.

2. Closure Plan

2.1 Description

As outlined in Part 257.102(c), removal of the CCR unit is a closure option and requires removing and decontaminating all areas affected by releases from the CCR unit. CCR removal and decontamination of the CCR unit are complete when constituent concentrations throughout the CCR unit and any areas affected by releases from the CCR unit have been removed and groundwater monitoring concentrations do not exceed the groundwater protection standard established pursuant to Part 257.95(h) for constituents listed in Final Rule Appendix IV. Therefore, Holding Pond closure at the Shiras Steam Plant will involve dewatering within the steel sheet pile cells, excavation of accumulated CCR material, 6 inches of soil over excavation, deposition of CCR/soil mixture onto adjacent property for drying, removal of the pump house and ancillary structure, and disposal of excavated materials at a permitted facility. The closure procedure is described below.

1. A turbidity curtain will be placed within Lake Superior at the margin of the project to prevent suspended sediment from entering Lake Superior.
2. The ash sluice and stormwater outfall pipes that previously discharged into the pond will be capped and excess concrete will be removed and disposed of at a licensed landfill facility.
3. Free liquid will be pumped from within the pond cells and discharged into the City of Marquette sanitary sewer system where it is conveyed to the municipal wastewater treatment plant.
4. The riprap located along the interior sheet pile walls will be excavated and stockpiled nearby. If it makes sense economically, the riprap will be power washed to remove residual CCR and stockpiled for use as future shoreline protection. If it is not cost effective to salvage the riprap, it will be loaded onto haul trucks and taken to the landfill.
5. The riprap on the west bank will be power washed to remove residual CCR. The riprap will remain in place following removal of the cells.
6. CCR material will be excavated from within the cells and placed on the adjacent property to allow for moisture to drain and evaporate from the CCR.
7. The interior steel sheet pile walls will be pulled for disposal. If the sheet piles are too deteriorated to be pulled, they will be cut off 8-12 inches below the lake bottom.
8. The lake bottom will be visually inspected for any remaining CCR. If present, excavation will continue until all CCR is removed. After visual confirmation that all CCR has been removed, the contractor will remove an additional 6 inches of soil within the cells to provide extra assurance that all CCR has been removed.

9. The pipelines to/from the ash pond pump house will be disconnected and capped
10. Salvage pumps and ancillary equipment and demolish aboveground structures. Demolish concrete floor slab. It is assumed the concrete and other waste material contains some residual CCR and will be power washed before disposal.
11. The pump house is founded on a backfilled sheet pile cell. Excavate foundation soil and stockpile on the adjacent property to dry. It is assumed the soil supporting the pump house contains some CCR. It is estimated that the pump house foundation contains about 90 CY of material.
12. Concrete structures in the basin (ramps, outfall structures) will be demolished, power washed and disposed.
13. The exterior sheet pile walls will be pulled and disposed.
14. The monitoring wells will be abandoned by removing the protective and flush-mount casings, tremie-grouting the well, and removed in accordance with Michigan DEQ requirements.
15. Riprap will be placed along the lake shore to protect against wave action.
16. Turbidity curtain will be removed.
17. The dried CCR, foundation soil and other waste material will be transported via haul trucks to the landfill.

2.2 Schedule

It is anticipated that closure plan implementation will commence during the second quarter of 2020 and will be completed within 6-months of commencing activities. Weather related or material availability issues may require extending the timeframe for closure. If a timeframe extension is required, a notification will be prepared as outlined in Part 257.101(f)(2)(iii).

Figure

LEGEND

Monitoring Well Location

0 100

SCALE
(ft., approximate)

Holding Pond Closure Plan	GEI Consultants	HOLDING POND LAYOUT
Shiras Steam Plant Holding Pond Marquette, Michigan	Project 1903625	January 2020 Figure 1