

**ANNUAL INSPECTION REPORT
EXISTING COAL COMBUSTION RESIDUE (CCR) LANDFILL
MUSCATINE POWER & WATER**

REPORT DATE: DECEMBER 23, 2018

A. Rule Requirement – Federal CCR Rule §257.84(b)

Under §257.84(b) existing CCR landfills and any lateral expansion of a CCR landfill must 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 document comprises the Inspection Report for 2018 required under this rule.

B. Documents Used to Review Status and Conditions – §257.84(b)(i)

This facility is regulated under Iowa Department of Natural Resources Sanitary Disposal Project Permit No. 70-SDP-06-82P which was issued on August 9, 2010, revised November 29, 2018, and with an expiration date of August 9, 2020.

1. Water discharge from this facility is regulated under Iowa Department of Natural Resources National Pollutant Discharge Elimination System (NPDES) Permit No. 7000109 which was issued on January 19, 2010 and expired on January 18, 2015. An application for permit renewal was submitted to DNR on July 18, 2014. This permit requires monitoring of specified constituents at the Farm Pond discharge outfall.
2. Landfill Development, Plans and Specifications, and Reports

	Title
STATE	
11/01/91	-Closure/Post Closure Plan. Original date 11/01/91, revised January 1996 and December 2009
11/21/91	-Supporting Documentation Plans and Specifications (DOPS).
01/29/93	-Supplemental Plan Sheet 16.
Various	-Supplemental information dated 10/02/08, 12/17/09, and 03/30/10.
1/17/12	-CCR Landfill Cell Development – Phase II (Drawings)
10/3/18	-Unstable Areas Determination
Various	-Annual Groundwater and Surface Water Monitoring Report
Various	-Annual Leachate Control System Performance Evaluation Report
FEDERAL	
10/19/15	-CCR Fugitive Dust Prevention and Control Plan; updated 12/5/2018
05/18/16	-Groundwater Monitoring System and Sampling and Analysis Program
10/17/16	-Run-on and Run-off Control System Plan
10/17/16	-Closure and Post-Closure Plan
Various	-Annual CCR Fugitive Dust Control Report
Various	-Annual Inspection Report
Various	-Annual CCR Fugitive Dust Control Report

C. Visual Inspection of the CCR Landfill – §257.84(b)(ii)

The existing landfill was visually reviewed by a Qualified Professional Engineer to identify signs of distress or malfunction of the CCR unit. The review was assisted by MP&W staff.

CCR Unit Location: SW½, Section 16, T76N R3W, Muscatine County, Iowa

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Date of Inspection: October 3, 2018

Weather: Mostly sunny, 80 degrees, wind estimate 20 mph

Field Observation By: Jon Scharf, PE, HR Green, Inc.

Others Present: Neil Hoskins – MP&W

D. Inspection Report – §257.84(b)(2)

§257.84(b)(2)(i) Landfill Geometry

The basic geometry of the structure is unchanged since the previous annual inspection, except for continued disposal of CCR in both Phase I and Phase II active fill areas.

§257.84(b)(2)(ii) CCR In-Place Volume

A topographic survey of landfill Phases I and II was updated on October 16, 2018. The amount of CCR contained in the unit was estimated by calculating the volume between the 2018 surveyed surface (less existing final soil cover) and the bottom of the landfill (average elevation 722 ft). Based on the survey, the approximate volume of in-place CCR is 769,000 cubic yards. Since this value is based on actual recent survey data, it is considered more accurate than previously reported volume estimates of in-place CCR. As required, this value will be updated annually and reported in the Annual Inspection Report. In future years when an updated survey is not available, volume estimates will be derived using the Fee-Exempt Material Quarterly Reports to DNR to determine the volume placed since the previous annual inspection.

§257.84(b)(2)(iii) Structural or other issues affecting operation

There are no obvious appearances of an actual or potential structural weakness of the CCR unit. There are no known existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit.

§257.84(b)(2)(iv) Other changes

There are no known change(s) which may have affected the stability or operation of the CCR unit since the previous annual inspection.

Other Comments

The following additional comments are based on our site inspection, review of pertinent documents, and knowledge of the site and operations.

- Development and Operations
 - MP&W's operator is proceeding in accordance with approved plans and specifications, including fill areas, slopes, height, access roads, monitoring wells, etc.
 - The landfill is operated in accordance with existing permits and amendments.
 - Permanent and temporary soil cover is being designed in 2018 and 2019 for the majority of Phases I and II. Construction of soil cover is planned in 2019.

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- Fugitive Dust Prevention and Control
 - Dust is controlled as described in the *CCR Fugitive Dust Prevention and Control Plan* dated October 19, 2015, updated December 2018, and in the most recent Annual CCR Fugitive Dust Control Report.
- Groundwater Monitoring System
 - The groundwater monitoring system appears operational from a visual review.
 - Under site permit, semi-annual sampling of both groundwater monitoring wells and surface water points was completed in March and August 2018.
 - Under federal rule Part 257.93, groundwater sampling events at monitoring wells for a different list of federal constituents were also completed in March, June and August 2018.
- Leachate Collection System
 - The system appeared to be operating as last described in the *Annual Leachate Control System Performance Evaluation Report* dated January 15, 2017. During this inspection, there were no apparent changes to this operation. The system is evaluated annually with a report to DNR by January 31.
 - Liquid levels in four (5) leachate piezometers (LPZ-1 through LPZ-5) were measured in May 2018.
- Erosion Control
 - MP&W's environmental and operations staff expend considerable effort and resources to address erosion issues as they occur. It is apparent that the open operating area of the landfill is currently larger than it needs to be, presenting challenges in management of large volumes of runoff and corresponding CCR erosion issues. Options for final and temporary cover in Phases I and II are being evaluated in 2018 with design and construction planned for 2019. The goal of the 2019 construction will be to establish a combination of final and temporary vegetated soil cover over most of the current active area, leaving a smaller portion open (uncovered) to sustain CCR filling operations at any point in time.
- Storm water
 - Surface water runoff volume to the control pond is significant due in part to the amount of operational space open in Phase I and II. With the application of vegetated cover over much of the current operational space in 2019, the amount of surface water runoff to the control pond is expected to be reduced.

A copy of this report will be placed in the operating record as required under §257.105(g)(9).

Under §257.84(c) Muscatine Power & Water intends to comply with the recordkeeping requirements specified in §257.105(g)(9), the notification requirements specified in §257.106(g)(7), and the public internet site requirements specified in § 257.107(g)(7).

As required under §257.84(b)(4), the deadline for completing the next annual inspection report is established as no later than one year following the Report Date on this document.

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CERTIFICATION

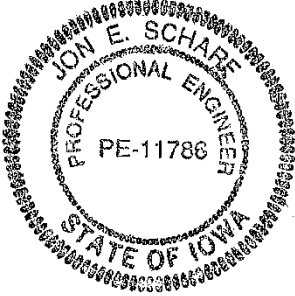

ANNUAL INSPECTION REPORT

CCR LANDFILL

Permit No. #70-SDP-06-82P-CCR

MUSCATINE POWER & WATER

MUSCATINE, IOWA

	I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.	
		Date: <u>12/23/18</u>
	Jon E. Scharf, P.E.	
	License No. 11786	
	My renewal date is December 31, 2019	
Pages or sheets covered by this seal: ENTIRE DOCUMENT		

Reviewed By:

Name: Gregory J. Brennan, P.H.G., P.G.
Certified Professional Hydrogeologist
Licensed Professional Geologist

Signature: 

Date: December 23, 2018

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