



D.E. Karn and J.C. Weadock Facility

2742 North Weadock Hwy

Essexville, MI 48732

SRN: B2840

Fugitive Dust Control Plan

For

Coal Combustion Residuals (CCR)

Date: 11/29/2021

Rev: 08

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1.0 INTRODUCTION

The purpose of this Fugitive Dust Control Plan (FDCP or “Plan”) is to describe the measures adopted at the Consumers Energy D.E. Karn (Karn) facility for minimizing fugitive dust emissions from coal combustion residual (CCR) handling operations. The scope of this Plan covers CCR generated from coal-fired boiler units, Karn Units 1 and 2, as well as CCR areas at the J.C. Weadock (Weadock) facility that ceased power generation from Boiler Units 7 and 8 in March 2016.

This Plan has been developed in accordance with the coal combustion residual regulations stipulated in 40 CFR 257.80. The scope of this Plan includes active CCR units as well as their corresponding roads, handling and control equipment, and associated activities therein. A site Fugitive Dust Plan Coordinator (FDPC) has been appointed and is responsible for ensuring adequate resources are provided for controlling fugitive dust, as well as implementing the monitoring and recordkeeping requirements of this Plan. This FDCP has been certified by a qualified professional engineer. The initial FDCP was posted and made available to the public on October 19, 2015. All subsequent revisions are posted to the operating record and public website, with a notification sent to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) within thirty (30) days of that posting.

The CCR units at the Karn – Weadock site subject to 40 CFR 257.80 consist of the following:

- Karn Bottom Ash Lined Impoundment – This wet system removes bottom ash from the main burner area of the boiler and sluices it by water into the Impoundment area. It went into service on June 7, 2018 and will continue to operate until the decommissioning of all power generation units at the complex.
- Weadock Landfill - The Weadock Landfill is a state-licensed landfill that historically received ash from Weadock Boiler Units 7 and 8 and received ash from the former Karn Bottom Ash Pond and Weadock Bottom Ash Pond. Bottom ash is currently being moved to this landfill from the BC Cobb Bottom Ash Pond and Ponds 0-8 as part of the closure activities for those units. This landfill also currently receives ash byproduct (ash, unspent and spent lime and carbon sorbent) from the Karn 1 and 2 Boiler Units.

The appropriate fugitive dust control activities selected for the site are based on good engineering practices based on the following:

- Engineering Control Plans developed for both the Karn and Weadock Landfills,
- The Operating License for the Weadock Landfill (#9640), and
- Michigan’s Fugitive Dust Regulations under Act 451 of 1994, Section 324.5524, as required by the site’s Renewable Operating Permit.

2.0 CCR OPERATIONS

2.1 BYPRODUCT HANDLING SYSTEM (GENERATION TO DISPOSAL SILOS)

The Karn Units 1 and 2 byproduct handling system includes a pneumatic collection system that transfers the CCR byproduct from the collection hoppers located under the Pulse Jet Fabric Filters (PJFFs) to the disposal storage silos or the byproduct recycle silos. The byproduct is pneumatically conveyed through hard piping under vacuum conveyance from the PJFF hoppers to the byproduct silo. A filter separator separates the byproduct from the conveying air through filter media. The byproduct drops into the silo

and the conveyance air is pushed through the filter separator fabric filters. The silo displacement air, which may contain particulates, is controlled by bin vent fabric filters.

The byproduct handling system is not operated unless the dust control systems are operating properly.

2.2 LANDFILL OPERATIONS (DISPOSAL SILO TO LANDFILL)

2.2.1 SILO OPERATION/TRUCK LOADING

The disposal and recycle silos are equipped with bin vent fabric filter dust collectors. The dust collectors operate when the silos are being filled. At the disposal silo, the byproduct is thoroughly mixed with water utilizing a paddle mixer (Dustmaster™). The ash is conditioned to a moisture content which displays properties of being dustless, and of a “ball-forming” consistency. These properties are typically exhibited with a moisture content between 12-30%. Proper conditioning of the byproduct with water and/or suppressant is to achieve a moisture content that will prevent wind dispersal and provide proper stability characteristics for the landfill, but will not result in free liquids. From the mixer, the conditioned byproduct drops down through a chute into the haul truck. A fogging system and dust curtains are used during this material transfer as needed. One of the two building doors may be closed prior to start of load out operation to reduce the “wind tunnel effect,” and any ash spillage shall be cleaned up and disposed of properly. The following operational controls are also in place:

- Appropriate moisture characteristics are maintained during the mixing/truck loading process.
- Transport truck bodies are maintained in good condition and properly closed to prevent leakage.
- Truck bodies are filled in a manner that minimizes fugitive emissions during transport (minimize exposed peaks above sideboards).
- Transport operations are suspended if the local weather forecast or current conditions indicate that operations cannot be conducted in a controlled manner.
- Roll mesh screens are used on trips for disposal as necessary or if winds are in excess of 20 miles per hour.

2.2.2 CCR - PLACEMENT AND STORAGE

The bulk of the CCR byproduct is being beneficially reused in the Weadock Landfill to stabilize low areas and begin to reach closure grades. The conditioned byproduct is placed in the landfill cell by dumper truck and further wetted as required to minimize dusting during spreading by bulldozer. The conditioned ash piles are to be flattened into lifts and compacted as specified in the Engineering Control Plan as they are deposited, utilizing water as necessary. An excavator may also be used for shaping the piles/slopes. All dumping, dozing, and excavating activities are visually monitored for emissions. Mitigation activities are implemented or operations are suspended if there are visible emissions. The following operational controls may be utilized for ash placement and storage.

- Condition the ash surface by compaction, moisture, dust suppressants, coarse cover material, vegetation, or other capping materials to prevent wind erosion.
- Minimize active portion of the landfill to approximately 10 acres. Reduce wind in the work area to reduce potential for wind transport, including utilizing the protective berm concept, existing

dikes, planned lifts, and permanent wind screens, where applicable, to reduce wind velocities and manage fugitive dust. Currently, Wind Defender™ screens are placed along southeast boundary of the Weadock Landfill.

- Develop the site as to bring the active fill area up to final grades as soon as possible.
- Supply a tank truck with equipment to apply water uniformly, to be available onsite at all times. In addition to a tank truck, an irrigation system became available October 2021 to cover active portions or other exposed areas of the landfill.
- Accelerate ash spreading and compaction under conditions conducive to dust formation to reduce exposure time.
- Ensure that ash excavation, loading, unloading and placement are suspended when the local weather forecast or current conditions indicate that such activities cannot be conducted in a controlled manner. Weather is continually monitored by operators in the field in addition to the twice-daily fugitive dust rounds conducted by site personnel. If excessive dusting is observed, response actions are initiated.

The following general procedures are in place for fugitive dust control of inactive cell areas:

- Inactive areas that have reached final grade shall use final cover materials and vegetation as specified in the Engineering Plan.
- Inactive areas that have not reached final grade shall be compacted and/or rolled into a concrete-like surface. A tackifier (currently DustNot™) can also be sprayed on the surface as a dust suppressant agent. Additionally, straw crimping will be deployed for inactive portions of the landfill that will not receive final cover within 180 days.

The following specific procedures and/ or equipment are in place for fugitive dust control activities at the Weadock Landfill:

- A permanent dust fence constructed from the Wind Defender™ system has been constructed along approximately 1,163 linear feet along the southeast corner of the JC Weadock Landfill.
- A temporary geosynthetic fabric, Wind Defender™, has been installed over 33 acres in the western portion of the landfill where grades are at or near final grade for construction of the final cover as of 11/30/2021.
- Structural fill materials consisting of clay have started to be imported and placed in the northeast corner. Approximately 27 acres have been covered as of 11/30/2021.
- An irrigation system consisting of a pump and reel design was put into service in October 2021 and is available to water 30-acres of the Weadock Landfill as necessary during months where the equipment does not require winterization.
- Eco-Ultimate™, a dust suppressant, is applied to exposed ash surfaces on an as-needed basis based on forecasted weather conditions. DustNOT™, an additional dust suppressant, is applied on haul roads based on forecasted weather conditions and at least twice a year for all other Weadock Landfill access roads.

2.3 WET CCR - BOTTOM ASH HANDLING

The wet ash handling system consists of a conveying system and the lined bottom ash impoundment that meets the criteria of 40 CFR 257.72(c). Bottom ash from Karn Units 1 and 2 is hydraulically sluiced through the discharge trestle to the Impoundment where it is allowed to settle out from the sluice water. The ash sluice water overflows into another chamber (not part

of the regulated impoundment) and discharges to a monitored internal outfall at the Combined Discharge Channel prior to the discharge at the external National Pollutant Discharge Elimination System (NPDES) permitted outfall to Saginaw Bay.

The primary settling portion of the lined impoundment is dredged by an excavator to remove the bottom ash sediment approximately once per week during normal unit operation. This primary settling portion of the lined impoundment is located directly downstream from the sluice piping and is protected by a layer of concrete. The sediment is stockpiled within the impoundment area to de-water before hauling. The bottom ash can be disposed in the Weadock landfill, or it can be beneficially re-used within the Weadock landfill boundaries (following placement criteria in Section 2.2.2 of this Plan as well as criteria called out in other applicable engineering plans) or hauled off-site for any other EGLE approved beneficial re-use. The bottom ash pile can be wetted with the water truck cannon to minimize fugitive dust as necessary.

The lined ash impoundment itself is operated in a wet condition and does not require active fugitive dust control. Measures to control fugitive dust from the stockpiled bottom ash and roads surrounding the ponds are addressed in the next section.

2.4 ROADS

Fugitive dust emissions may be generated from trucks and other heavy equipment traveling on the site haul roads and entering/exiting the site. Access roads utilize coarse bottom ash or other approved materials as base and/or topper. Road wetting is implemented as necessary to minimize fugitive emissions from truck travel on the site roadways. A water truck is available on site to wet roads as needed. There is a speed limit of 15 mph on non-paved roads that are non-haul roads to minimize fugitive dust generation. Haul roads that are actively managed with water and dust suppressants have a speed limit of 25 mph. Speed limit controls are placed based on observed conditions. Dust suppressants may also be added to the road to reduce the requirements for wetting the road with a water truck.

3.0 MONITORING/RECORDKEEPING

3.1 MONITORING

The entire CCR system is monitored through visual checks of process equipment and the corresponding particulate matter control devices as follows:

- Daily visible emission inspections are conducted on the ash handling dust collectors, during periods of dry handling system equipment operation. Proper operation is defined as no visible emissions.
 - If any visible emissions from a pollution control device are observed, appropriate actions will be taken immediately to stop emissions. If emissions from the pollution control device cannot be eliminated, the malfunctioning equipment will be removed from service immediately and a maintenance notification shall be submitted for repairs. The above actions shall be recorded in the Operations Log and notice sent to the FDPC.

- The byproduct handling dust collector differential pressures and pressure tap readings are logged into the plant Data Control System (DCS), with alarm set-points programmed to alert operators if pressure is too high.
 - If a pollution control device is operating outside of the normal differential pressure range, a repair action is initiated by submitting a maintenance notification to the Production Supervisor. The pollution control device shall be restored to normal operation as soon as possible.
- The site maintains necessary spare parts on site for routine repairs of the control and monitoring equipment.
- Daily, active landfill areas are visually inspected for drying, and water is applied as needed if surface drying is evident. In addition to a tank truck, an irrigation system became available October 2021 to cover active portions or other exposed areas of the landfill.
- A fugitive dust record is maintained that includes events such as visible emissions observed reaching the site boundary, as well as the suspended activities due to fugitive dust emissions issues. At least two rounds daily are completed by a shift supervisor on weekdays and 1-2 rounds per shift are completed on weekend by security. The date, cause, and corrective action taken shall be logged relative to suspended activities.
- Fugitive dust control techniques and/or activities which are used for any of the various site activities to control fugitive dust are documented.

3.2 RECORDKEEPING

The following records will be retained for a period of at least five (5) years:

- Actions taken to control CCR fugitive dust
- Record of all citizen complaints
- Summary of any corrective measures taken

4.0 CITIZEN COMPLAINTS

All complaints, concerns and/or inquiries and any resultant action shall be documented in the site's External Communication Log. Any citizen complaint will be acted upon through internal communication procedures. Environmental Services and Legal shall be notified of any citizen complaint regarding CCR Fugitive Dust. In accordance with the CCR regulation, the complaint log and resultant actions will be summarized in the annual report.

5.0 PLAN ASSESSMENTS/AMENDMENTS

The FDCP will be audited utilizing Consumers Energy Compliance Assurance guidance once per year, coordinated by Environmental Services in order to periodically assess the effectiveness of the FDCP. Results of the audit shall be reported to site management.

This FDCP can be amended at any time provided that revisions are logged and the revised Plan is placed in the facility's operating record. The FDPC is responsible for communicating to the Environmental Services CCR lead whenever there is a change in site conditions that would substantially affect the written Plan in effect. Environmental Services is responsible for amending the Plan as necessary. All amendments to the FDCP must be certified by a qualified professional engineer. A notice shall be sent to the EGLE within 30 days of when the Plan is revised.

6.0 ANNUAL REPORTING

The FDPC will assist Environmental Services in preparing an annual CCR fugitive dust control report that includes a description of the actions taken by plant personnel or contractors to control CCR fugitive dust, a record of all citizen complaints, and a summary of any corrective actions taken. The report shall be reviewed by the Site Business Manager (see Section 7.0) and Legal prior to posting to the operating record. Annual reports shall be completed and posted to the operating record one year after the date of posting the previous report. A notice will be sent to the EGLE within 30 days of posting the annual report.

7.0 CERTIFICATIONS

CCR Fugitive Dust Plan, Professional Engineer Certification:

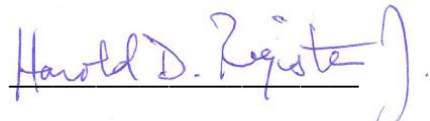
By means of this certification, I attest that I am familiar with the requirements of provisions of 40 CFR 257, that I or my designated agent have visited and examined the facility, that this CCR FDCP has been prepared in accordance with good engineering practices, including consideration of applicable industry standards, and with the requirements of this Part, that procedures for required fugitive dust minimization activities, monitoring, and reporting have been established and that the Plan is adequate for the facility.

Harold D. Register, Jr.

56266

Professional Engineer

License Number (MI)


Harold D. Register, Jr.

11/29/2021

Professional Engineer (Signature)

Date of Plan Certification:

CCR Fugitive Dust Plan Management Approval:

This Plan is certified as being prepared in accordance with good engineering practices. Thus, this Plan has the full approval of Consumers Energy Company Management. I am at a level of sufficient authority to commit the necessary resources to implement this Plan as described. I have appointed the following representative as the CCR Fugitive Dust Plan Coordinator (FDPC): Caleb Batts



Sean Kelly
Site Business Manager

NOVEMBER 30, 2021
Date

8.0 REVISION HISTORY

Revision Number	Date of Revision	Reason(s) for Revision
0	9/16/15	Original Edition
1	1/27/17	Amended Plan to combine DEK and JCW facilities as JCW boilers decommissioned in April 2016; however JCW landfill is the main active landfill for CCR.
2	3/23/17	Amended requirement for rolled mesh screens during ash hauling in Section 2.2.1, consistent with LM113-5.
3	5/29/18	Added reference to the new Lined Bottom Ash Impoundment. Revised Section 2.3 "Wet CCR - Bottom Ash Handling" to correspond with site operations.
4	12/3/18	Revised language relating to the Weadock Landfill (Section 1.0) and its CCR storage (Section 2.2). Included the option of using chemical suppressants on roads (Section 2.4). Updated the lead role of the audit, FDCP changes, and the annual report to Environmental Services (Sections 5.0 and 6.0). Updated Certifying Professional Engineer (Section 7.0).
5	11/19/19	Updated CCR list to reflect closure of Karn Bottom Ash Pond. State environmental agency nomenclature changed from MDEQ to EGLE.
6	12/4/2020	Removed reference in Section 1.0 to the Karn Bottom Ash Pond and Weadock Bottom Ash Pond, which are no longer CCR units.
7	09/01/2021	Updated plan to reflect additional specific fugitive dust control mitigation measures that including straw crimping for inactive portions of the landfill that haven't received cover and the addition of a water irrigation system that can rapidly deploy water to aid in dust suppression efforts.
8	11/29/2021	This plan was updated from Rev. 07 to include specific measures employed at the JC Weadock Landfill to enhance fugitive dust control mitigation capacity during the closure construction sequences.