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March 13, 2018

Martha Grafton
Land Protection Division
Department of Environmental Quality
P.O. Box 1677
Oklahoma City, OK 73101-1677

RE: Muskogee Generating Station
CCR Inactive Surface Impoundment
CCR Closure Plan

Dear Ms. Grafton:

Please find enclosed the Closure Plan for the Muskogee Generating Station Inactive CCR surface impoundment located at 5501 Three Forks Road, Ft. Gibson, OK 74434. This Closure Plan has been prepared in accordance with Title 40 Code of Federal Regulations (CFR) Part 257.102 and the Oklahoma Department of Environmental Quality (ODEQ) Oklahoma Administrative Code (OAC) 252:517-15-7.

If you have any questions concerning this report please contact me by either my office (405-553-3349) or cell phone (405-708-9964).

Sincerely,

A handwritten signature in black ink, appearing to read 'Tad Dow', written over a white background.

Tad Dow
Staff Envirochemist

Enclosures

**Closure Plan for
CCR Inactive Surface Impoundment
Muskogee Power Plant**



FACILITY LOCATION:

5501 Three Forks Road
Ft. Gibson, OK 74434



Revision 0
Date: March 12, 2018

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1.0 PURPOSE AND SCOPE

Oklahoma Gas and Electric Services (OG&E) has prepared this closure plan for the coal and combustion residuals (CCR) inactive surface impoundment located at the OG&E Muskogee power (MK) facility, Muskogee, Oklahoma. This closure plan has been prepared in accordance with Title 40 Code of Federal Regulations (CFR) Part 257.102 and the Oklahoma Department of Environmental Quality (ODEQ) Oklahoma Administrative Code (OAC) 252:517-15-7.

2.0 SITE DESCRIPTION

The OG&E MK facility is located at 5501 Three Forks Road in Fort Gibson, Oklahoma. The OG&E MK facility operates three coal-fired burning units that generate dry fly ash and wet bottom ash CCR products. The CCR dry fly ash is managed in aboveground silos and eventually distributed and processed as commercial products (e.g., concrete, bagged products, roadbed stabilization, etc.). The CCR bottom ash is sluiced into separate aboveground dewatering hoppers, loaded into trucks, and removed from the facility where it is reutilized for the brick industry and aggregate markets, or disposed in a permitted landfill. The site also contains one inactive CCR surface impoundment. This 15-acre surface impoundment previously received CCR material during dewatering bin maintenance or malfunction and as a means to flush lines. The impoundment ceased operations on October 14, 2015.

The inactive CCR surface impoundment is categorized as an Inactive CCR impoundment as defined by 40 CFR 257.53 and OAC 252:517-1-3. The inactive CCR surface impoundment contains a liner system that is constructed with 6-inches of soil and bentonite (42% bentonite mixed with on-site soil) overlain with 6-inches of cement stabilized aggregate on both the side slopes and impoundment bottom. In addition to this liner system, the impoundment bottom also contains 12-inches of untreated crushed stone overlain with a 6-inch crushed stone treated base (hydrated lime stabilized).

3.0 DESCRIPTION OF CLOSURE PROCESS

In accordance with 40 CFR 257.102(b)(ii) and 40 CFR 257.102(c), and OAC 252:517-15-7(b)(1)(B) and 252:517-15-7(c), Closure of the CCR inactive surface impoundment will be accomplished by removal of CCR material. The following section provides a description of the procedures that will be used to remove the CCR material and decontaminate any potential releases from the CCR inactive surface impoundment.

3.1 Permits and Approvals

Prior to initiating closure of the CCR inactive surface impoundment, OG&E will obtain concurrence and approval of this closure plan from the ODEQ. OG&E will obtain a stormwater construction permit for the removal of the impoundment dike and earthen walls, which will also include the final grading and surface stabilization. The City of Fort Gibson will be notified for performing construction activities within the FEMA designated flood zone. Coordination with the local landfill (for CCR materials and the impoundment liner that will be disposed) will be performed to ensure pre-approval of discarded CCR materials and the liner system.

3.2 Dewatering

Dewatering of the CCR inactive surface impoundment was initiated in CY2017 by discharging the water into the MK industrial wastewater treatment system. Since the CCR inactive surface impoundment has been disconnected from all plant process systems, the unit only receives direct rainfall. The rainfall collected within the unit is currently pumped into the bottom ash recycle system for use as make-up water. Dewatering may also be performed, as needed, during the excavation of the CCR material from the unit and will be discharged to either the bottom ash recycle system for water reuse or to the MK wastewater treatment system.

3.3 Excavation of CCR Material and Liner System

The excavation of CCR bottom ash material and the liner system will be removed by typical construction equipment methods (excavators, dozers, drag line, etc.). The excavated CCR bottom ash will be loaded into open end dump trucks, covered with tarps, and the material transported off-site for either beneficial reuse or disposal. Improvements for ingress and egress into the CCR surface impoundment will be performed and the ancillary inactive piping will be removed, as needed, prior to excavation activities.

The CCR bottom ash from the surface impoundment will be excavated first and will either be utilized for beneficial use as a product (e.g., brick manufacturing, etc.) or will be disposed at an approved landfill. It is possible that some of the bottom ash excavated from unit may be temporarily staged on the existing bottom ash concrete pad staging area (located adjacent to the inactive impoundment) for additional temporary dewatering. Fly-ash may also be utilized for solidifying the bottom ash if needed. CCR bottom ash material will be removed from the inactive impoundment based upon visual observations.

The CCR inactive surface impoundment liner system will be removed after the initial removal of the CCR bottom ash. The liner system will be evaluated for potential beneficial reuse (e.g. roadway beds) or disposed offsite at a permitted landfill. It should be noted that flexibility will be required regarding the means and methods for excavating the CCR materials, as well as additional dewatering of the CCR material, if needed.

3.4 Removal of Impoundment Dike Walls and Sump

Upon completion of removing the CCR bottom ash material and the liner system, the CCR impoundment dike walls will be collapsed and graded into the footprint of the excavated impoundment and contoured to match the existing terrain. The concrete sump structure located at the Southwest corner of the impoundment will be removed and ancillary piping removed from within the immediate area. The existing bottom ash recycle water underground piping will be blank flanged by welding a steel plate or similar method and abandoned in-place.

3.5 Final Grading and Revegetation

Additional topsoil may be imported and incorporated into the final grading contour to promote vegetation growth and surface drainage. Mechanical seeding or hydro-seeding will be initiated, as well as the possible placement of straw to minimize erosion, as part of the revegetation process. Stormwater best management practices will be maintained until the construction area achieves at least 70% surface stabilization.

3.6 Completion of Closure Activities

CCR removal and decontamination of the CCR unit is considered 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 standards established pursuant to OAC 252:517-9-6(h) for constituents listed in Appendix B to OAC Chapter 517. Once the CCR material and any contamination has been removed, and testing shows groundwater monitoring concentrations do not exceed the groundwater protection standards in OAC Chapter 517, a notification of closure will be submitted to the ODEQ.

4.0 MAXIMUM INVENTORY OF CCR MATERIAL

In accordance with 40 CFR 257.102(b)(iv) and OAC 252:517-15-7(b)(1)(D), OG&E has not been required to maintain historical CCR inventory or volume records within the CCR inactive impoundment. However, in anticipation for implementation of the EPA CCR rule in CY2015, OG&E performed bathymetric mapping using both sonar and sediment probing methods. The results of this mapping effort revealed that the estimated inventory of CCR within the inactive surface impoundment is approximately 82,000 cubic yards.

5.0 FINAL COVER AREA ESTIMATE

40 CFR 257.102(b)(v) and OAC 252:517-15-7(b)(1)(E) require the closure plan to include an estimate of the largest area of the CCR unit ever requiring a final cover at any time during the CCR unit's active life. This section is only a requirement when closure is performed by leaving CCR in place. The MK CCR Inactive Impoundment will be closed through the removal of CCR material, therefore 40 CFR 257.102(b)(v) and OAC 252:517-15-7(b)(1)(E) do not apply.

6.0 SCHEDULE OF CLOSURE ACTIVITIES

Closure of the MK CCR Inactive Impoundment will be performed in accordance with the following tentative schedule. This schedule may be revised based upon weather or delays in the acquisition of permits or other agency notifications and coordination.

Activity	Estimated Duration	Estimated Completion Year
Agency Coordination, Notification, and Permit Acquisition	6 Months	2018
Procurement and Vendor Selection	3 Months	2018
Dewatering (continuous)	9 Months	2018
Initiate CCR removal	6 Months	2018
Complete CCR removal	6 Months	2019
Regrade Embankment and Impoundment Area	2 Weeks	2019
Revegetation	6 Months	2019 - 2020
Prepare and Submit Certification of Closure	1 Month	2020

7.0 CLOSURE PLAN AMENDMENTS

In accordance with 40 CFR 257.102(b)(3) and OAC 252:517-15-7-(b)(3), this closure plan may be amended when/if there is a change in operation of the CCR unit that would substantially affect the written closure plan; or before or after closure activities have commenced, unanticipated events necessitate a revision of the written closure plan. Since the CCR Inactive Impoundment will be undergoing closure through complete removal of CCR material, only significant substantive

Prior to commencing field closure activities, the closure plan will be amended at least 60 days prior to a planned change in the operation of the facility or CCR unit, or no later than 60 days after an unanticipated event that requires the need to revise the existing written closure plan. Any significant substantive changes to the closure plan after closure activities have commenced will be communicated to the ODEQ prior to implementation in the field. The closure plan will subsequently be amended no later than 30 days following a triggering event once closure activities have commenced.

8.0 POST-CLOSURE PLAN

Pursuant to 40 CFR 257.104(a)(2) and OAC 252:517-15-9(a)(2), the CCR unit is not subject to post-closure care criteria since closure of the CCR inactive impoundment will be accomplished through CCR removal.

9.0 PROFESSIONAL ENGINEER CERTIFICATION

I hereby certify, as a Professional Engineer in the State of Oklahoma, that the information in this document was assembled under my direct supervisory control. I certify that to the best of my knowledge and belief, the information presented in this document are correct.

Suraj A. Balan, P.E.

3/12/2018

Date

Oklahoma Certificate of Authorization Number: 159

