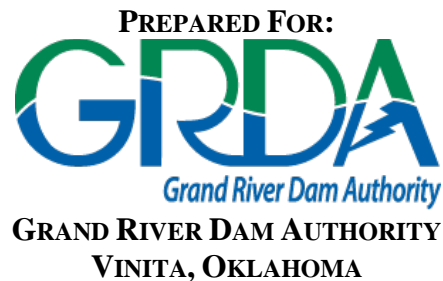


**POST-CLOSURE PLAN**  
**FOR**  
**GRAND RIVER DAM AUTHORITY LANDFILL**  
**GRAND RIVER ENERGY CENTER**  
**MAYES COUNTY, OKLAHOMA**  
**SOLID WASTE PERMIT NO. 3549012**



**FEBRUARY 22, 2018**

**A & M PROJECT NO. 1986-018**



**PREPARED BY:**

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POST-CLOSURE PLAN  
GRAND RIVER DAM AUTHORITY LANDFILL  
GRAND RIVER ENERGY CENTER  
MAYES COUNTY, OKLAHOMA

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## CERTIFICATION STATEMENT

I certify that this Post-Closure Plan was prepared under my direction or supervision in accordance with good engineering practice and the requirements of Oklahoma Administrative Code (OAC) 252:517 for the GRDA Landfill located within the Grand River Energy Center complex in Mayes County, Oklahoma. Based on the information reviewed, this report is to the best of my knowledge and belief, true, accurate and complete.

**A & M ENGINEERING AND ENVIRONMENTAL SERVICES, INC.**

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Jared T. Bates, P.E.

Oklahoma Registration No. 20681

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Date



**POST-CLOSURE PLAN**  
**GRAND RIVER DAM AUTHORITY LANDFILL**  
**GRAND RIVER ENERGY CENTER**  
**MAYES COUNTY, OKLAHOMA**

## **1.0 INTRODUCTION**

The Grand River Dam Authority (GRDA) owns and operates the Grand River Energy Center (GREC) electric generating station located approximately three (3) miles east of the City of Chouteau in Mayes County, Oklahoma. Two (2) coal fired boilers are operated at GREC which produce Coal Combustion Residuals (CCRs) consisting of fly ash and bottom ash. Fly ash comprises greater than 80% of CCRs generated at the facility and is largely sold for beneficial use purposes. Excess fly ash and bottom ash is disposed at a permitted coal ash landfill, herein referred to as the GRDA Landfill, located within the GREC complex.

The GRDA Landfill is permitted by the Oklahoma Department of Environmental Quality (DEQ) as a Non-Hazardous Industrial Waste Landfill that is allowed to accept fly ash, bottom ash and spent powdered activated carbon used to control flue gas emissions, generated at the GREC (DEQ, 2015). The GRDA Landfill is situated south of the coal fired boiler units within the GREC complex and has been in operation since 1982. The total landfill permit area consists of approximately 67 acres, of which only 48 acres is available for use. 47 acres have been utilized for CCR disposal to date.

40 CFR 257.102(d) requires existing CCR landfills to prepare “*a written post-closure plan that includes, at a minimum, the information specified in paragraphs (d)(1)(i) through (iii) of this section.*”

Oklahoma adopted the new CCR rules into code OAC 252:517, adopted February 17, 2017, approved by the Governor June 13, 2017, effective September 15, 2017.

OAC 252:517-15-9(d) states: *The owner or operator of a CCR unit must prepare a written postclosure plan that includes, at a minimum, the information specified in paragraphs (d)(1)(A) through (C) of this Section.*



## **2.0 POST-CLOSURE PLAN [OAC 252:517-15-9(C)(1)]**

Following closure of the GRDA Landfill, post-closure care must be provided for 30 years. During the post-closure care period, the landfill will be monitored and maintained as described in the following sections.

### **2.1 MONITORING AND MAINTENANCE ACTIVITIES [OAC 252:517-15-9(B)]**

During the post-closure care period, access to the site will be controlled by the facility perimeter fence, access gates and regular facility security. Only authorized personnel will be allowed entry into the landfill area.

GRDA will maintain the integrity and effectiveness of the final cover system by making repairs to the final cover as necessary to correct the effects of settlement, subsidence, erosion, or other events and preventing run-on and run-off from eroding or otherwise damaging the final cover. All areas of erosion, settlement and subsidence will be repaired with suitable fill soil and re-vegetated. Surface water controls will be maintained as necessary to ensure proper site drainage. Vegetation will be mowed at least annually to control the growth of unwanted vegetation that may damage the integrity of the final cover system. Regular inspections of the landfill, including cover areas, slopes, surface water controls and ancillary features will be performed, at least quarterly, in order to identify any relevant maintenance items that require attention.

GRDA will continue to maintain the groundwater monitoring system and implement the groundwater monitoring program in accordance with the landfill Sampling and Analysis Plan and OAC 252:517-9-3.

### **2.2 POST-CLOSURE CONTACT PERSON [OAC 252:517-15-9(D)(1)(B)]**

The contact information for the GRDA Landfill during the post-closure care period will be as follows:

Grand River Dam Authority  
Attn: Superintendent of Environmental Compliance  
P.O. Box 70  
Langley, Oklahoma 74350-0070



The name, address and telephone number of the post-closure contact person will be updated as necessary upon notice of closure.

### **2.3 POST-CLOSURE SITE USE [OAC 252:517-15-10(A)]**

The landfill will remain part of the GREC complex and will be maintained regularly. There will be no use of the landfill during or after the post-closure care period that will damage the integrity of the final cover system.

### **2.4 POST-CLOSURE COST ESTIMATES [OAC 252:517-17-32]**

GRDA will continue to provide DEQ with annual post-closure cost estimate updates and satisfy financial assurance obligations required by the facility permit.

### **3.0 PLAN AMENDMENTS AND REVISIONS [OAC 252:517-15-9(D)(3)]**

In accordance with OAC 252:517-15-9(d)(3)(A), GRDA may amend this written Post-Closure Plan at any time provided the revised plan is placed in the facility's operating record as required by OAC 252:517-19-1(i)(4). GRDA is required to amend this written Post-Closure Plan whenever there is a change in conditions that would substantially affect the written plan in effect or if unanticipated events before or after the commencement of closure activities necessitates a revision. GRDA must amend this Plan at least 60 days prior to a planned change in the operation of the facility or no later than 60 days after an unanticipated event requires the need to revise the Plan. If a written Post-Closure Plan is revised after post-closure activities have commenced, GRDA must amend the written Post-Closure Plan no later than 30 days following the triggering event.

### **4.0 RECORDKEEPING REQUIREMENTS [OAC 252:517-19-1(I)(4)]**

In accordance with OAC 252:517-19-1(i)(4), GRDA must maintain this Post-Closure Plan in the facility operating record.



## **5.0 OTHER NOTIFICATION REQUIREMENTS [OAC 252:517-19-2]**

In accordance with OAC 252:517-19-2, the DEQ Land Protection Division must be notified when this document or any subsequent amendments or revisions to this document are placed in the operating record and on the publicly accessible internet site.

No later than 60 days following the completion of the post-closure care period, GRDA will prepare a notification verifying that the post-closure care has been completed. The notification must include the certification by a qualified professional engineer verifying that post-closure care has been completed in accordance with the post-closure plan and OAC 252:517-15-9(e).

## **6.0 CCR WEBSITE REQUIREMENTS [OAC 252:517-19-3]**

In accordance with OAC 252:517-19-3, GRDA must maintain this Closure Plan on the corporate “CCR Rule Compliance Data and Information” webpage.

## **7.0 REFERENCES**

Holway-United, *Grand River Dam Authority 490-MW Coal-Fired Generating Station Ash Disposal Site Permit Application, Chouteau, Oklahoma.* August 22, 1979.

Oklahoma State Department of Health (OSDH), *Permit for a Coal Ash Disposal Site.* January 13, 1981.

Oklahoma Department of Environmental Quality (DEQ), *Permit Modification to add an additional Solid Waste Stream, Grand River Dam Authority, Mayes County, Permit 3549012.* February 20, 2015.

State of Oklahoma, Oklahoma Department of Environmental Quality (ODEQ), *OAC 252:517 Disposal of Coal Combustion Residuals from Electric Utilities,* September 15, 2017

United States Environmental Protection Agency (USEPA), *40 CFR Part 257, Subpart D.* April 17, 2015.

Grand River Dam Authority (GRDA), *Coal Combustion Residual Fugitive Dust Control Plan for Grand River Energy Center.* October 2015

