



# Closure Plan Jeffrey Energy Center Bottom Ash Settling Area

Revision 0 - October 2016

Revision 1 – April 2021

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## Plan Review/Amendment Log §257.102(b)(3)

Date of Review	Reviewer Name	Amendment Required (YES/NO)	Sections Amended and Reason
October 13, 2016	APTIM Environmental & Infrastructure, LLC	Original	
April 2021	Everbay, Inc	YES	<p>Revised company name, corrected CCR unit name, removed regulatory requirements cross-reference table, removed figures, updated maximum volume, separated the plan for closure of this unit separately from the Bottom Ash Landfill, revised for closure by removal &amp; to be closer in alignment with other Everbay closure plans.</p> <p>Note that no triggering event has necessitated this revision. Revised</p>

## 1.0 INTRODUCTION

Evergy, Inc. (Evergy) has revised the following Closure Plan (Plan) for the Bottom Ash Settling Area (BASA) located at the Jeffrey Energy Center (JEC) in St. Mary's, Kansas. JEC is a coal-fired generating station. The BASA has been deemed to be a regulated coal combustion residual unit under the United States Environmental Protection Agency (USEPA) Disposal of Coal Combustion Residuals from Electric utilities Final Rule (CCR Rule) 40 CFR §257 and §261.

This Plan details the closure requirements outlined in §257.102(b) for CCR units closed by removal of CCR. The criteria for conducting the closure or retrofit of CCR units for the BASA are detailed in Section 2.0. Additionally, the following Plan details the necessary steps to close the BASA at any point in during the active life, based on recognized and good engineering practices.

## 2.0 REGULATORY OVERVIEW OF CCR CLOSURE PLAN REQUIREMENTS

On April 17, 2015, USEPA published the CCR Rule under Subtitle D of the Resource Conservation and Recovery Act (RCRA) as 40 CFR Part §257 and §261. The purpose of the CCR Rule is to regulate the management of CCR in regulated CCR units for landfill and surface impoundments. The BASA has been deemed to be a regulated CCR unit at JEC.

Section 257.102(b) of the CCR Rule requires owners or operators of CCR landfills and surface impoundments to prepare a Plan describing the closure of the unit and schedule for implementation of the Plan. The following citations from the CCR Rule are applicable for the BASA as discussed in this Plan:

§257.102(b)(1) stipulates:

*(b) Written closure plan – (1) Content of the plan. The owner or operator of a CCR unit must prepare a written closure plan that describes the steps necessary to close the CCR unit at any point during the active life of the CCR unit consistent with recognized and generally accepted good engineering practices. The written closure plan must include, at a minimum, the information specified in paragraphs (b)(1)(i) through (vi) of this section*

- (i) A narrative description that discusses how the CCR unit will be closed in accordance with this section. (See Section 4.1)*
- (ii) If closure of the CCR unit will be accomplished through removal of CCR from the CCR unit, a description of the procedures to remove the CCR and decontaminate the CCR unit in accordance with paragraph (c) of this section. (See Section 4.1)*
- (iii) If closure of the CCR unit will be accomplished by leaving CCR in place, a description of the final cover system, designed and methods and procedures to be used to install the final cover will achieve performance standards specified in paragraph (d) of this section, and the methods and procedures to be used to install the final cover. The closure plan must also discuss how the final cover system achieves the performance standards specified in paragraph (d) of this section. (N/A)*
- (iv) An estimate of the maximum inventory of CCR ever on-site over the active life of the CCR unit. (See Section 3.4)*
- (v) An estimate of the largest area of the CCR unit ever requiring a final cover as required by paragraph (d) of this section at any time during the CCR unit's active life. (N/A)*
- (vi) A schedule for completing all activities necessary to satisfy the closure criteria in this section, including an estimate of the year in which all closure activities for the CCR unit will be completed. The schedule should provide sufficient information to describe the sequential steps that will be taken to close the CCR unit, including identification of major milestones such as coordinating with and obtaining necessary approvals and permits from other agencies, the dewatering and stabilization phases of CCR surface impoundment closure, or installation of the final cover system, and the estimated timeframes to complete each step or phase of CCR unit closure. When preparing the written closure plan, if the owner or operator of a CCR unit estimates that the time required to complete closure will exceed the timeframes specified in paragraph (f)(1) of this section, the written closure plan must include the site-specific information, factors and considerations that would support any time extension sought under paragraph (f)(2) of this section. (See Section 5.0)*

An outline of the closure performance standards for closure of units where CCR will be removed is described in §257.102(c), which stipulates:

*“An owner or operator may elect to close a CCR unit by 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 §257.95(h) for constituents listed in appendix IV to this part.”*

In accordance with §257.102(b)(4), a written certification is provided in Section 7.0 from a qualified professional engineer in the State of Kansas, to certify that this Plan meets the requirements of the CCR Rule.

### **3.0 JEC BASA OVERVIEW**

#### **3.1 Location, Topography, and Description**

Bottom ash slurry was historically deposited within JEC's BASA. The closure of the BASA will be accomplished by the removal of the CCR from the unit. The following Plan was developed to satisfy the CCR Rule requirements for removal of CCR per §257.102(b)(1)(ii).

The BASA is located within JEC ½ mile west of the plant and ¾ miles east of Tower Hill Lake. The total surface area of the impoundment is less than 20 acres.

There are no available drawings, construction records, or written operational records of the original construction. However, in the original construction a berm was constructed on the downstream west side of the unit creating a depression that was subsequently allowed to fill with bottom ash. As the depression became full, the containment berm was increased in height to increase available storage.

The topography varies across the Bottom Ash Area ranging in elevations from 1,226 to 1,299 feet mean sea level (ft MSL).

#### **3.2 Existing Solid Waste Regulatory Permits and Consents**

Evergy was granted an Industrial Landfill Permit at JEC by the Kansas Department of Health and Environment – Bureau of Waste Management (KDHE-BWM) for the BASA through Industrial Landfill Permit No. 0359, in accordance with Kansas Statutes Annotated (KSA) 65-3407. KDHE modified the solid waste permit, per K.A.R. 28-29-6a, in response to the CCR Rule to include CCR material handling areas where fugitive dust control was required. The current Industrial Landfill Permit modification was approved on October 15, 2015. This allows CCR material generated on-site at JEC and to be properly treated and/or disposed within the Industrial Landfill Permit boundary, including the BASA.

#### **3.3 Bottom Ash Generation, Recycling, and Disposal**

Bottom ash generated at JEC is collected in a hopper and gravity sluiced, in a water slurry to the BASA. The bottom ash is allowed to settle out and dry in the BASA prior to transport to the adjacent Bottom Ash Area Landfill. Bottom ash is segregated at the Bottom Ash Area Landfill for recycling efforts and either used for resale to the construction industry or disposed at the Bottom Ash Area Landfill. Bottom ash will no longer be sluiced to the pond after April 11, 2021.

#### **3.4 Maximum Volume Estimate (§257.102(b)(1)(iv))**

The maximum volume ever on site is unknown, however, Evergy expects the maximum amount of CCR ever in the unit would not have exceeded the unit capacity, which was estimated by Aptim in 2021 to be approximately 534,000 cubic yards (cy).

#### **4.0 CLOSURE PLAN (§257.102(b)(1))**

This Plan has been prepared in accordance with requirements of the CCR Rule and includes a written certification in Section 7.0 from a qualified Professional Engineer for the State of Kansas.

#### **4.1 Narrative Description (§257.102(b)(1)(i) and (ii))**

Closure will be accomplished through removal of CCR. The CCR material contained in the unit will be dewatered as necessary, removed, and either beneficially used or disposed in an on-site CCR landfill. CCR will be removed primarily by mechanical excavation using earth-moving equipment. CCR will be allowed to dewater by gravity drainage and evaporation. The impoundment will be decontaminated by removal of CCR and closure will be considered complete when constituent concentrations throughout the CCR unit, if detected, have been removed and/or groundwater monitoring concentrations do not exceed the groundwater protection standard for constituents listed in Appendix IV to 40 CFR 257. Following CCR removal, stormwater controls will be installed to manage flow from the BASA, which will also be regraded for surface water drainage; and the area will be seeded, vegetated, and/or re-surfaced as appropriate for surface water and erosion control.

## 5.0 CLOSURE ACTIVITY SCHEDULE (§257.102(b)(1)(vi))

The size of area and time of year closure construction takes place will vary, therefore closure construction schedules will vary. The schedule provided in this section is therefore a general estimation.

### 5.1 Commencement of Closure

Commencement of final closure has occurred if placement of waste in the BASA has ceased and any of the following actions or activities has been completed (40 CFR 257.102(e)(3)):

- (i) Steps necessary to implement this Plan;
- (ii) Submittal of a completed application for any required state or agency permit or permit modification; or
- (iii) Steps necessary to comply with any state or other agency standards that are a prerequisite, or are otherwise applicable, to initiating or completing the closure.

### 5.2 Closure Schedule

The milestones and the associated timeframes in this section are initial estimates. Some of the activities associated with the milestones will overlap.

**Table 1: Estimated Closure Schedule**

Written Closure Plan	April 2021
Notification of Intent to Close Placed in Operating Record	April 11, 2021
Initiation of Closure / Coordinating with and obtaining necessary approvals and permits from other agencies	Year 1-2
Mobilization	Year 1
Dewater and remove CCR	Year 1 - 3
Year all closure activities for the CCR unit will be completed	Year 1-5 <sup>1</sup>
Notes: 1. Final closure of Surface Impoundments must be completed within five years of commencing closure unless a demonstration is placed in the operating record (40 CFR 257.102(f)(2)).	

## **6.0 AMENDMENT OF CCR CLOSURE PLAN (§257.102(b)(1))**

The owner or operator may amend the initial or any subsequent written Plan developed pursuant to 40 CFR 257.102(b)(1) at any time.

The written closure must 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 requires the need to revise an existing written Plan. If a written Plan is revised after closure activities have commenced for a CCR unit, the current written Plan must be amended no later than 30 days following the triggering event.

A written certification from a qualified professional engineer that the initial and any amendment of the written Plan meets the requirements of §257.102(b) must be obtained.

Plan changes will be documented using the Revision History which prefaces this Plan. Changes to this Plan will be certified by a Qualified Professional Engineer.

**7.0 PROFESSIONAL ENGINEER CERTIFICATION (§257.102(b)(4))**

The undersigned registered professional engineer is familiar with the CCR Rule requirements of §257.102 of the CCR Rule and has visited and examined JEC or has supervised examination of JEC by appropriately qualified personnel. The undersigned registered professional engineer attests that this CCR Plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards and meets the requirements of §257.102, and that this Plan is adequate for JEC's facility. This certification was prepared as required by §257.102(b)(4).

Name of Professional Engineer: W. Jay Martin, P.E.

Company: Evergy

Professional Engineer Seal:

