Post-Closure Plan
Tecumseh Energy Center
322 Landfill

Prepared for:
Evergy Kansas Central, Inc.
Tecumseh Energy Center
Tecumseh, Kansas

Prepared by:
Haley & Aldrich, Inc.

Revision 0 - October 2016
Revision 1 - March 9, 2021
Revision 2 – 28 February 2022

TABLE OF CONTENTS

Plan Review/Amendment Log §257.104(d)(3)

Date of Review	Reviewer Name	Amendment Required (YES/NO)	Sections Amended and Reason
October 2016 (original version)	CB&I Environmental & Infrastructure, Inc.	N/A	Original
March 9, 2021 (Revision 1)	Richard Southorn (APTIM Environmental & Infrastructure, LLC)	No	Update new company name & contact info, improve alignment with other Evergy post-closure plans, remove CCR rule table, remove unit design & history info, add monitor well inspections, remove/correct citations, remove figures & recordkeeping/notification/internet requirement section, add mowing & inspection frequency, access control requirements, and various minor clarifications.
28 February 2022 (Revision 2)	Steven F. Putrich (Haley & Aldrich, Inc.)	No	Update inspection frequencies, public access control measures, groundwater assessment monitoring period, CCR Rule amendments, and various other clarifications.

1.0 INTRODUCTION

Haley & Aldrich, Inc. (Haley & Aldrich) has prepared the following Post-Closure Plan (Plan) at the request of Evergy Kansas Central (Evergy) for the 322 Landfill (Landfill, Unit) located at the Tecumseh Energy Center (TEC) in Tecumseh, Kansas. TEC was a coal-fired power plant that began operation in 1925. The facility ceased power generation on 1 October 2018.

The Landfill has been deemed to be a regulated coal combustion residuals (CCR) unit by the United States Environmental Protection Agency (USEPA) through the Disposal of Coal Combustion Residuals from Electric Utilities Final Rule (CCR Rule) 40 CFR §257 and §261. Evergy obtained a certification of unit closure in accordance with §257.102(f)(3) of the CCR Rule on April 30, 2021.

This Plan details the post-closure requirements outlined in §257.104 of the CCR Rule effective October 19, 2015, including subsequent revisions, for CCR units closed in place. The criteria for conducting the post-closure care of the Unit are detailed in Section 2.0. Post-closure care processes have been established to control, minimize, and eliminate infiltration of liquids into waste and release of leachate.

2.0 REGULATORY OVERVIEW OF CCR POST-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 Parts §257 and §261. The purpose of the CCR Rule is to regulate the management of CCR in regulated units for landfill and surface impoundments.

Section §257.104(d) of the CCR Rule requires owners or operators of CCR Landfills and surface impoundments to prepare a written Post-Closure Plan describing the monitoring and maintenance activities, contact personnel during the post-closure care period, and the planned use of the unit during post-closure care period. The following citations from the CCR Rule are applicable for the Unit as discussed in this Plan:

§257.104(d)(1) stipulates:

"The owner or operator of a CCR unit must prepare a written post-closure plan that includes, at a minimum, the information specified in paragraphs (d)(1)(i) through (iii) of this section

(i) A description of the monitoring and maintenance activities required in paragraph (b) of this section for the CCR unit, and the frequency at which these activities will be performed;

(ii) The name, address, telephone number, and email address of the person or office to contact about the facility during the post-closure care period; and

(iii) A description of the planned uses of the property during the post-closure period. Post-closure use of the property shall not disturb the integrity of the final cover, liner(s), or any other component of the containment system, or the function of the monitoring systems unless necessary to comply with the requirements in this subpart. Any other disturbance is allowed if the owner or operator of the CCR unit demonstrates that disturbance of the final cover, liner, or other component of the containment system, including any removal of CCR, will not increase the potential threat to human health or the environment. The demonstration must be certified by a qualified professional engineer or approved by the Participating State Director or approved from the EPA where EPA is the permitting authority, and notification shall be provided to the State Director that the demonstration has been placed in the operating record and on the owners or operator's publicly accessible internet site."

An outline of the post-closure care maintenance requirements is described in §257.104(b) which stipulates:

"*Following the closure of the CCR unit, the owner or operator must conduct post-closure care for the CCR unit, which must consist of at least the following:*

1. *Maintaining the integrity and effectiveness of the final cover system including 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*
2. *If the CCR unit is subject to the design criteria under §257.70, maintaining the integrity and effectiveness of the leachate collection and removal system and operating the leachate collection and removal system in accordance with the requirements of §257.70; and*

3. *Maintaining the groundwater monitoring system and monitoring groundwater in accordance with the requirements of §257.90 through §257.98"*

This Plan has been prepared in accordance with the requirements of the CCR Rule and includes a written certification in Section 9.0 from a qualified Professional Engineer in the State of Kansas.

§257.104(d)(2) stipulates:

"Deadline to prepare the initial written post-closure plan"

(i) Existing CCR landfills and existing CCR surface impoundments. No later than October 17, 2016, the owner or operator of the CCR unit must prepare an initial written post-closure plan consistent with the requirements specified in paragraph (d)(1) of this section.

(ii) New CCR landfills, new CCR surface impoundments, and any lateral expansion of a CCR unit No later than the date of the initial receipt of CCR in the CCR unit, the owner or operator must prepare an initial written post-closure plan consistent with the requirements specified in paragraph (d)(1) of this section.

The initial written post-closure plan was prepared and placed in the facility's operating record on 14 October 2016.

§257.104(d)(3) stipulates:

"Amendment of a written post-closure plan."

(i) The owner or operator may amend the initial or any subsequent written post-closure plan developed pursuant to paragraph (d)(1) of this section at any time.

(ii) The owner or operator must amend the written closure plan whenever:
   a. There is a change in the operation of the CCR unit that would substantially affect the written post-closure plan in effect; or
   b. After post-closure activities have commenced, unanticipated events necessitate a revision of the written post-closure plan.

(iii) The owner or operator must amend the written post-closure plan 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 post-closure plan. If a written post-closure plan is revised after post-closure activities have commenced for a CCR unit, the owner or operator must amend the written post-closure plan no later than 30 days following the triggering event.

This amended Plan or any subsequent version of the Post-Closure Plan will be assessed and amended per Section 8 of this Plan.

3.0 UNIT OVERVIEW

Evergy owns and operated the waste management landfill unit at TEC in Tecumseh, Kansas in Shawnee County. TEC is located approximately 6.5 miles east of Topeka, Kansas and approximately 2 miles north of Highway 70. The Unit is bounded to the north by 2nd Street and an adjacent industrial property, with the Kansas River located less than one-half mile north of the Unit. The Unit is bounded on the east and south by agricultural land and Highway 40 is along the southern boundary, with rural residential properties located along the western portion of the Unit boundary.

Evergy was previously granted an Industrial Landfill Permit (Permit No. 0322) at TEC by the Kansas Department of Health and Environment – Bureau of Waste management (KDHE-BWM), 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 all on-site CCR waste materials management units as disposal areas under the existing solid waste permit for TEC. The current Industrial Landfill Permit was approved on October 15, 2015.

Bottom ash, economizer ash, and fly ash (CCR material) were disposed of within the Unit. During operation and in accordance with Evergy's KDHE Landfill Operations Plan, CCR was disposed of in the Landfill in a manner to place and compact the material to maintain stability, manage drainage, and to minimize dust generation and truck access problems. Trucks transported the waste to the landfill area and unloaded the byproducts at the active working surface. Initially the material was placed in staging piles. Once a significant quantity of material was staged the material was spread in lifts approximately 1.5ft. to 2ft. thick with at least two passes of the bulldozer used for spreading. The bulldozer compacted each lift to ensure a stable waste mass. The fly ash had cementing properties and set up with moisture resulting in a stable fill. This operation created a stable base with reduced expectation of settlement on which the final cover system could be constructed. The closure of the Unit was accomplished by leaving the CCR material in place and covering the CCR material with an engineered cap. The final cover design and construction of the Unit has been designed to meet 40 CFR §257.102(d) as noted in the closure certification dated April 30, 2021.

4.0 POST-CLOSURE OVERVIEW AND PLANNED USE (§257.104(d)(1)(iii))

This Plan applies to the proposed site end use for the Unit. Evergy has no planned uses for the property during the post-closure care period at this time. As such, the closed Unit will be a natural area of passive open space and post-closure use of the property will not disturb the integrity of the final cover system. No waste was left exposed after completion of the Landfill closure. The Landfill is surrounded by a fence that is approximately 5 feet, 6-inches in height. In areas adjacent to SE 2nd Street to the north, an additional 12 inches of barbed wire is attached to the top of the fence. Access to the Landfill site is controlled and allows for access by one entry point along the north side of the site, and the entrance has a locked entry gate consisting of the same fence with barbed wire. This entrance/exit gate will remain locked during the post-closure period unless access is needed for landfill maintenance and/or inspection. The Landfill will be closed to the public. Post-closure use of the Unit property will not disturb the integrity of the final cover, containment systems, or the functioning of the monitoring systems, unless necessary to comply with the CCR Rule. Any other disturbance, such as removal of CCR for beneficial use, is allowed if the owner or operator of the CCR unit demonstrates that disturbance of the final cover, or other components of the containment system, will not increase the potential threat to human health or the environment. The demonstration must be certified by a qualified professional engineer and a notification will be provided to the Kansas Department of Health and Environment, Bureau of Waste Management, that the demonstration has been placed in the operating record and on the Evergy publicly accessible internet site.

5.0 MONITORING AND MAINTENANCE ACTIVITIES (§257.104(d)(1)(i) and §257.104(b))

Post-closure care will be performed for a period of 30 years in accordance with §257.104(c). The Unit is currently under assessment monitoring. Per §257.104(c)(2) post closure activities will continue to be implemented beyond the 30-year timeline if the Unit remains in assessment monitoring as outlined in 257.95. Post-closure activities include environmental monitoring and maintenance.

5.1 Inspection and Monitoring Activities (§257.104(b)(1))

As part of the post-closure care phase for the Unit, periodic inspections will be completed. Initially, inspections will continue to be completed no less frequently than a seven-day interval through the first year of closure. Inspection frequency will be reduced as final cover conditions are found to be stable and depending on the need for periodic maintenance. Evergy will then reduce the inspection frequency to quarterly for the second year of closure. Again, assuming that final cover system is found to be stable, the program will shift to annual inspections, which is the actual requirement under KDHE solid waste post-closure requirements. If any signs of instability are observed, additional inspections will be made following repairs until the area is determined to be stable.

The inspections of the closed Unit will be conducted by appropriately knowledgeable personnel. The purpose of the visual inspections during the post-closure care phase will be to detect any damage, distress, or malfunctions to the Unit final cover, cover soils, and vegetation, which includes, but is not limited to settlement, seepage, erosion, scarps, sloughs, stormwater ponding, wind erosion, stormwater erosion, and animal burrows. Run-on and run-off controls will be inspected for signs of erosion and seepage. During the post-closure care period, Evergy will maintain the integrity of any monitoring wells, bollards, well surface completions, and sampling equipment for the Unit in secure and proper working condition for the required sampling intervals. The monitoring wells and sampling equipment will be inspected at each sampling event. Monitoring wells will be re-surveyed if surface completions are modified. Any issues found will be corrected as part of maintenance activities discussed in Section 5.2 with the goal of maintaining the integrity of the Unit and its monitoring systems. Evergy's checklist for inspections is provided below:

CCR Inspection Criteria

General Questions	Assessor Responses	Action Items: Maintenance/Repairs & Comments	Inspection Photo (if needed)
1. Previous Planned work incomplete?			
2. Mowing or tree removal needed?			
3. Cracking/slides/settling bulging in banks or slopes?			
4. Erosion, rills, or lack of vegetation on top or slopes?			
5. Animal burrows, or seeps that are not designed from slope?			
6. Erosion, standing water, or long grass around monitoring wells, or are wells unlocked, or in need of repair? (Complete for each sampling event in addition to inspection).			
7. Are there any areas where run-on or run-off controls are not functioning properly?			

The established CCR groundwater monitoring network will be utilized, inspected, and maintained during the post-closure care period to maintain groundwater monitoring in accordance with §257.90 through §257.98.

5.2 Final Cover System Maintenance and Repair Plan (§257.104(b)(1))

Minimal CCR material consolidation is anticipated due to material dewatering, the physical characteristics of the bottom ash, economizer ash and fly ash material deposited, the CCR material being vibrated/compacted during placement and because most settlement will have occurred shortly after placement. Regrading and repair of the final cover soil may be required in the event that future non-uniform settlement or erosion is observed to be impacting the functional design and/or operation of the Unit and surrounding areas.

Maintenance of the final cover will include periodic mowing as needed but not less than once per year of the vegetative cover and reseeding as necessary. The grass will be maintained at such a level as to facilitate inspection. This will help to discourage the inhabitance of burrowing animals. The topsoil layer on the final cover system will be inspected, filled with appropriate soil, regraded, and seeded if significant erosion occurs. Public access to the Unit is currently restricted by the existing fence and locked gate which will also assist in maintenance of final cover by helping to prevent cover damage by public use.

Routine maintenance of the cap and diversion ditches include periodic control of sediment and vegetation. Repair of surface water channels, if needed, will typically be performed by bringing in equipment such as excavators, dump trucks, loaders, dozers, and/or scrapers. Materials such as silt fence, straw bales, and soil will be used as needed to implement short-term repairs while waiting for permanent repairs. By controlling site access and maintaining the system of stormwater controls, erosion and damage to the final cover system will be minimized.

6.0 NOTICE OF COMPLETION OF POST-CLOSURE CARE (§257.104(e))

Evergy will complete a Notice of Completion of Post-Closure Care Period within 60 (sixty) days of completion of post-closure of the Unit. The notification will include the certification by a registered professional engineer as required by §257.104(e).

7.0 KEY CONTACT INFORMATION (§257.104(d)(1)(ii))

Name:	Environmental Services Department
Address:	Evergy 818 South Kansas Avenue Topeka, Kansas 66601 Alternate: PO Box 418679 Kansas City, MO 64141-9679
E-mail Address:	EvergyCCR@evergy.com
Phone Number:	888-471-5275 Alternate: (800) 383-1183

8.0 PROCEDURES FOR PLAN ASSESSMENTS AND AMENDMENTS (§257.104(d)(3))

The Plan will be amended if there is a situation stated in §257.104(d)(3)(i-iii). The Plan will be amended 60 days prior to a planned change of the TEC facility or Unit, or no later than 60 days after an unanticipated event that would necessitate a revision and no later than 30 days after an unanticipated event after post-closure care activities have commenced.

Any amended Plan will be certified by a registered professional engineer and will be placed in TEC's facility operating record as required per §257.105(i)(12). Amended Plans will supersede and replace any prior versions. Availability of an amended Plan will be noticed to the State Director per §257.106(i) and posted to the publicly accessible internet site per §257.107(i).

9.0 PROFESSIONAL ENGINEER CERTIFICATION (§257.104(d)(4))

The undersigned registered professional engineer is familiar with the requirements of §257.104 of the CCR Rule and has visited and examined this Unit or has supervised examination of this Unit 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 §257.104, and that this Plan is adequate for TEC's facility. This certification was prepared as required by §257.104(d)(4).

Name of Professional Engineer: Steven F. Putrich

Company: Haley & Aldrich, Inc.

Professional Engineer Seal:

Steven F. Putrich Digitally signed by Steven F. Putrich Date: 2022.02.28 13:18:37 -05'00'