CLOSURE PLAN

CFR 257.102(b)

CCR Landfill

Flint Creek Plant
Gentry, Arkansas

September, 2016

Prepared for: Southwestern Electric Power Company

Prepared by: American Electric Power Service Corporation

1 Riverside Plaza

Columbus, OH 43215

GERS-16-017

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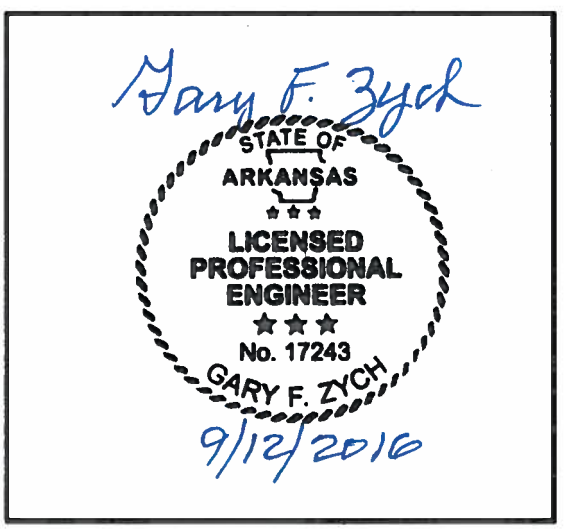
CFR 257.102(b)
FLINT CREEK PLANT
CCR LANDFILL

PREPARED BY Gary F. Zych DATE 9/7/2016
Gary F. Zych, P.E.

REVIEWED BY [signature] DATE 9:10:16
Satyananda Chakrabarti, P.E.

APPROVED BY Gary F. Zych DATE 9/12/2016
Gary F. Zych, P.E.
Manager – AEP Geotechnical Engineering



I certify to the best of my knowledge, information, and belief that the information contained in this closure plan meets the requirements of 40 CFR § 257.102

I certify to the best of my knowledge, information and belief that design of the final cover system as described in this closure plan meets the requirements of 40 CFR § 257.102.

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ATTACHMENT A - Closure Plan from Existing Landfill Permit

1.0 OBJECTIVE

This report was prepared by AEP- Geotechnical Engineering Services (GES) section to fulfill requirements of CCR 257.102(b) for Closure Plans of Existing CCR Units.

2.0 DESCRIPTION OF THE CCR UNIT

The Flint Creek Power Plant is located near the City of Gentry, Benton County, Arkansas. Southwestern Electric Power Company (SWEPCO) is a co-owner of the plant It is operated by Southwestern Electric Power Company (SWEPCO). The facility operates a landfill for the disposal of CCR materials.

The landfill is permitted by the Arkansas Department of Environmental Quality, Class 3N Landfill permit 0273-S3N-R2.

3.0 DESCRIPTION OF CLOSURE PLAN 257.102(b)(1)(i)

[A narrative description of how the CCR unit will be closed in accordance with this section]

The Flint Creek landfill will be closed periodically during the life capacity of the facility. The closure activities are further discussed in the ADEQ-approved Closure Plan in Attachment A. This Plan in Attachment A contains all of the pertinent information and requirements of Section 257.102 (b).

4.0 CLOSURE IN PLACE 257.102 (b)(1)(iii)

[If closure of the CCR unit will be accomplished by leaving the CCR in place, a description of the final cover system, designed in accordance with 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 will achieve the performance standards specified in paragraph (d) of this section.]

4.1 CLOSURE PERFORMANCE STANDARDS 257.102 (d)(1)

4.1.1 SECTION 257.102(d)(1)(i)

[Control, minimize or eliminate, the maximum extent possible extent feasible, post-closure infiltration of liquids into the waste and releases of CCR, leachate, or contaminated run-off to the ground or surface waters or to the atmosphere.]

The final cover system is designed to minimize infiltration into the landfill.

4.1.2 SECTION 257.102(d)(1)(ii)

[Preclude the probability of future impoundment of water, sediment, or slurry.]

The final surface areas will be graded to a minimum slope of 2% to prevent the ponding of surface water runoff. Drainage features will be designed to have positive drainage.

4.1.3 SECTION 257.102(d)(1)(iii)

[Include measures that provide for major slope stability to prevent the sloughing or movement of the final cover system during the closure and post-closure care period.]

The final cover system will be gently graded with a minimum of 2% slope. The final configuration of the facility will meet the stability requirements to prevent the sloughing or movement of the final cover system during the closure and post-closure care period.

4.1.4 SECTION 257.102(d)(1)(iv)

[Minimize the need for further maintenance of the CCR unit.]

The facility will be vegetated to prevent erosion. Maintenance of the final cover system will include mowing.

4.1.5 SECTION 257.102(d)(1)(v)

[Be completed in the shortest amount of time consistent with recognized and generally accepted good engineering practices.]

The CCR unit will be closed in a timeframe consistent with recognized and generally accepted good engineering practices. As the fill reaches the approved final grades, periodic closure activities may occur.

4.2 DRAINING AND STABILIZING OF THE SURFACE IMPOUNDMENT 257.102(d)(2)

This section is not applicable to a landfill.

4.3 FINAL COVER SYSTEM 257.102 (d)(3)

[If a CCR unit is closed by leaving CCR in place, the owner or operator must install a final cover system that is designed to minimize infiltration and erosion , and at a minimum, meets the requirements of paragraph (d)(3)(i) of this section, or the requirements of the alternative final cover system specified in paragraph (d)(3)(ii) of this section.

The final cover system must be designed and constructed to meet the criteria in paragraphs (d)(3)(i)(A) through (D) of this section. The design of the final cover system must be included in the written closure plan.]

The final cover system as described in Attachment A meets the requirements of the referenced paragraphs.

5.0 ESTIMATE OF MAXIMUM CCR VOLUME 257.102 (b)(1)(iv)

[An estimate of the maximum inventory of CCR ever on-site over the active life of the CCR unit.]

The maximum CCR volume permitted for this facility is 2,026,000 Cubic Yards.

6.0 ESTIMATE OF LARGEST AREA OF CCR REQUIRING COVER 257.102 (b)(1)(v)

[An estimate of the largest area of CCR unit ever requiring a final cover

The largest area of the CCR unit ever requiring a final cover at any time is 33.6 acres.

7.0 CLOSURE SCHEDULE 257.102(b)(1)(vi)

[A schedule for completing all activities necessary to satisfy the closure criteria in the 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 the CCR surface impoundment closure, or installation of the final cover system, and the estimated timeframes to complete each step or phase of the CCR unit closure.

At this time, the facility will close upon retirement of the power plant. Once the CCR unit requires closure a schedule to satisfy this section will be prepared and the Plan amended.

ATTACHMENT A

Closure Plan from Existing Landfill Permit

1.0 OBJECTIVE

This report was prepared by AEP- Geotechnical Engineering Services (GES) section to fulfill requirements of CCR 257.102(b) for Closure Plans of Existing CCR Units.

2.0 DESCRIPTION OF THE CCR UNIT

The Flint Creek Power Plant is located near the City of Gentry, Benton County, Arkansas.
It is owned and operated by Southwestern Electric Power Company (SWEPCO). The facility operates a landfill for the disposal of CCR materials.

The landfill is permitted by the Arkansas Department of Environmental Quality, Class 3N Landfill permit 0273-S3N-R2.

3.0 DESCRIPTION OF CLOSURE PLAN 257.102(b)(1)(i)-(1)(vi)

[A narrative description of how the CCR unit will be closed in accordance with this section]

The Flint Creek landfill will be closed periodically during the life capacity of the facility. The closure activities are further discussed in the ADEQ-approved Closure Plan in Attachment A. This Plan in Attachment A contains all of the pertinent information and requirements of Section 257.102 (b).

4.0 CLOSURE IN PLACE 257.102 (b)(1)(iii)

[If closure of the CCR unit will be accomplished by leaving the CCR in place, a description of the final cover system, designed in accordance with 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 will achieve the performance standards specified in paragraph (d) of this section.]

4.1 CLOSURE PERFORMANCE STANDARDS 257.102 (d)(1)

4.1.1 SECTION 257.102(d)(1)(i)

[Control, minimize or eliminate, the maximum extent possible extent feasible, post-closure infiltration of liquids into the waste and releases of CCR, leachate, or contaminated run-off to the ground or surface waters or to the atmosphere.]

The final cover system is designed to minimize infiltration into the landfill.

4.1.2 SECTION 257.102(d)(1)(ii)

[Preclude the probability of future impoundment of water, sediment, or slurry.]

The final surface areas will be graded to a minimum slope of 2% to prevent the ponding of surface water runoff. Drainage features will be designed to have positive drainage.

4.1.3 SECTION 257.102(d)(1)(iii)

[Include measures that provide for major slope stability to prevent the sloughing or movement of the final cover system during the closure and post-closure care period.]

The final cover system will be gently graded with a minimum of 2% slope. The final configuration of the facility will meet the stability requirements to prevent the sloughing or movement of the final cover system during the closure and post-closure care period.

4.1.4 SECTION 257.102(d)(1)(iv)

[Minimize the need for further maintenance of the CCR unit.]

The facility will be vegetated to prevent erosion. Maintenance of the final cover system will include mowing.

4.1.5 SECTION 257.102(d)(1)(v)

[Be completed in the shortest amount of time consistent with recognized and generally accepted good engineering practices.]

The CCR unit will be closed in a timeframe consistent with recognized and generally accepted good engineering practices. As the fill reaches the approved final grades, periodic closure activities may occur.

4.2 DRAINING AND STABILIZING OF THE SURFACE IMPOUNDMENT 257.102(d)(2)

This section is not applicable to a landfill.

4.3 FINAL COVER SYSTEM 257.102 (d)(3)

[If a CCR unit is closed by leaving CCR in place, the owner or operator must install a final cover system that is designed to minimize infiltration and erosion , and at a minimum, meets the requirements of paragraph (d)(3)(i) of this section, or the requirements of the alternative final cover system specified in paragraph (d)(3)(ii) of this section.

The final cover system must be designed and constructed to meet the criteria in paragraphs (d)(3)(i)(A) through (D) of this section. The design of the final cover system must be included in the written closure plan.]

The final cover system as described in Attachment A meets the requirements of the referenced paragraphs.

5.0 ESTIMATE OF MAXIMUM CCR VOLUME 257.102 (b)(1)(iv)

[An estimate of the maximum inventory of CCR ever on-site over the active life of the CCR unit.]

The maximum CCR volume permitted for this facility is 2,026,000 Cubic Yards.

6.0 ESTIMATE OF LARGEST AREA OF CCR REQUIRING COVER 257.102 (b)(1)(v)

[An estimate of the largest area of CCR unit ever requiring a final cover

The largest area of the CCR unit ever requiring a final cover at any time is 33.6 acres.

7.0 CLOSURE SCHEDULE 257.102(b)(1)(vi)

[A schedule for completing all activities necessary to satisfy the closure criteria in the 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 the CCR surface impoundment closure, or installation of the final cover system, and the estimated timeframes to complete each step or phase of the CCR unit closure.

At this time, the facility will close upon retirement of the power plant. Once the CCR unit requires closure a schedule to satisfy this section will be prepared and the Plan amended.

ATTACHMENT A

Closure Plan from Existing Landfill Permit

CLOSURE AND POST-CLOSURE CARE PLAN

FOR THE:
SOUTHWESTERN ELECTRIC POWER COMPANY
FLINT CREEK POWER PLANT LANDFILL
CLASS 3N LANDFILL
PERMIT 0273-S3N-R1

PREPARED FOR:
SOUTHWESTERN ELECTRIC POWER COMPANY
428 TRAVIS STREET
SHREVEPORT, LA 71101

PREPARED BY:
HULL & ASSOCIATES, INC.
3401 GLENDALE AVENUE
SUITE 300
TOLEDO, OHIO 43614

MARCH 2014
(REV. NO. 2)

engineers | geologists | scientists | planners

Hull & associates, inc.

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1.0 INTRODUCTION

1.1 Purpose, Scope, and Applicability

This Closure and Post-Closure Care Plan addresses Chapters 13 and 14 of the ADEQ Regulation 22 (Solid Waste Management Rules) for the SWEPCO Class 3N Flint Creek Power Plant Landfill. The references state the requirements for closure and post-closure care of a Class 3 Solid Waste Facility (Facility). Section number references are placed in brackets throughout this plan to identify the applicable section of Regulation 22 being addressed. This plan includes a description of the steps that shall be taken to close the Facility, a general schedule for closure, a description of the final cover system and the methods used to install the cover, and a description of post-closure care activities. Information supplemental to this closure plan, such as full-scale facility design, is in the Facility's prior permit (approved July, 2010) and in the current permit (Intermediate Liner and Leachate Collection System Permit Modification). A copy of the Closure and Post-Closure Care Plan will be placed in the Facility operating record and notification will be provided to the ADEQ pursuant to Reg.22.1301(d).

1.2 Facility Description

SWEPCO Corporation owns 50% of the Facility and operates the Class 3N Landfill located near Gentry, Arkansas in accordance with solid waste Permit 0273-S3N-R1. Arkansas Electric Coop Corporation owns the other 50% of the Facility. The site consists of approximately 45 acres and is located in portions of Section 8, Township 18 North, and Range 33 West in Benton County, Arkansas. The original landfill facility consists of 40 acres, which includes a waste disposal footprint of 33.6 acres. This permit modification adds approximately five acres to the facility to contain the leachate pond and the contact water pond.

2.0 CLOSURE PLAN

The following sections describe the general layout, design, and operations of the Facility. This Closure Plan has been developed to address waste management and disposal areas at the Landfill.

2.1 General Site Layout

The Facility consists of approximately 45 acres, which includes the approximately 40-acre Class 3N Landfill and various support facilities including entrance roads, leachate and contact water storage ponds, vehicle/equipment facilities, groundwater monitoring facilities, and stormwater control systems. Additional surface water control structures may also be added during construction in accordance with construction stormwater pollution prevention plan needs.

2.2 Non-Commercial Waste Disposal Area

The waste disposal boundary shown in this permit application covers a footprint of approximately 33.6 acres.

2.3 Closure Requirements

This closure plan for the Facility includes the information required by Reg.22.1301 as presented in the sections that follow. The steps that are necessary to close the Landfill at any point during its active life in accordance with the proposed cover design are presented.

2.3.1 Description of Final Cover System (Reg.22.1301(c)(1))

Prior to installation of the final cover system, the site shall be graded so stormwater does not pond on the Landfill (per Reg. 22.1301(h)). The final cover system design is shown on the drawings in this permit application. The final cover system consists of the following, from bottom to top: (1) an 8-oz. non-woven geotextile; (2) a 40-mil linear low density polyethylene (LLDPE) geomembrane; (3) a double-sided geocomposite drainage layer; (4) an 18” protective cover soil layer; and (5) a 6” vegetative soil layer. The stormwater control system design is shown on Drawing 1-30119 of this permit application. Additional stormwater controls may be added to satisfy construction stormwater pollution prevention needs.

The Landfill shall be closed when the facility is completely filled with waste. The footprint of the acreage to be closed is estimated to be approximately 33.6 acres.

Closure construction drawings and specifications shall be prepared for each phase of closure in accordance with the approved final closure design and this closure plan. The closure cost estimates for the Facility shall be adjusted yearly to account for any modified permit conditions and inflation. Closure construction shall be monitored and documented in accordance with the Facility's Construction Quality Assurance Plan (See Appendix L of this permit application). Documents related to final cover system construction activities shall be placed in the operating record and the ADEQ shall be notified of such activity.

2.3.2 Estimate of Largest Area (Reg.22.1301(c)(2))

The estimated largest area of a landfill unit requiring closure at any time during the active life of the Landfill is approximately 33.6 acres.

2.3.3 Maximum Inventory (Reg.22.1301(c)(3))

Per the November 2007 Closure and Post-Closure Care Plan prepared by Terracon Consultants, Inc., the estimated maximum inventory of wastes on-site over the active life of the Landfill is 1,556,000 cubic yards, which did not include approximately 470,000 cubic yards placed prior to 1994. Prior to 1994 a landfill permit was not required for the landfill. In this permit modification, the estimated 470,000 cubic yards mentioned above is being included plus an addition of approximately 828,000 cubic yards requested by this permit modification application. Based on the above, the maximum inventory of waste on-site over the active life of the Landfill is 2,854,000 cubic yards.

2.3.4 Schedule for Closure (Reg.22.1301(c)(4) and Reg.22.1301(f) and (g))

Closure of the Facility shall begin within 30 days following the final receipt of waste; or, when the unit has reached its final permitted elevations; or, if the Facility has remaining capacity and there is a reasonable likelihood that it will receive additional wastes, no later than one year after the most recent receipt of waste. Table 1 shows an estimated closure schedule. The time frames listed are approximate and may vary due to contractor's schedule, weather conditions, or other unforeseen conditions. Closure of the Facility shall be completed within 180 days following the beginning of closure activities. The scheduling of closure will take into account seasonal weather conditions. If necessary, due to inclement weather or other circumstances, a request to extend this schedule may be made to the Director of the ADEQ in accordance with (Reg.22.1301(g)).

TABLE 1
ESTIMATED CLOSURE SCHEDULE

Closure Activity/Task	Number of Days to Complete
Notify the ADEQ of intent to perform closure upon achieving final waste grade	1
Begin closure activities	20
Perform grading of waste	10
Install final cover system	120
Seed and mulch	10
Installation of remaining erosion and sediment control structures	10
Finalize Certification Report	10
ESTIMATED TIME TO COMPLETE CLOSURE	**180**

2.3.5 Closure Plan Approval (Reg.22.1301(d))

The Facility shall submit the prepared Closure Plan, including any revisions that may be necessary to the ADEQ for approval, prior to beginning any closure activities.

2.3.6 Notification Requirements (Reg.22.1301(e))

The ADEQ shall be notified when the Facility stops receiving waste for disposal. The Director of the ADEQ shall be notified, prior to the beginning of closure of the Landfill, that the intent to close the Landfill has been placed in the operating record.

2.3.7 Estimated Closure Costs (Reg.22.1402)

In accordance with Reg.22.1402, estimated costs for closing the Facility are developed based on hiring a third party to close the largest area requiring final cover at any given time during the operation of the Class 3 facility. The estimated closure cost for the Facility is located in Appendix A.

2.3.8 Facility Recordkeeping and Report Requirements (Reg.22.520(a)(6))

A copy of the approved Closure and Post-Closure Plan shall be kept in the operating record (per Reg.22.520(a)(6)). The Director of the ADEQ shall be notified that a Closure and Post-Closure Plan has been prepared and placed in the operating record (per Reg.22.1302(e)). The records

shall be permanently maintained in the Facility operating record unless destruction of the records is authorized by the Director of the ADEQ following the completion of the post-closure monitoring period (per Reg.22.1301(d)). The Director of the ADEQ shall be provided with updated closure and post-closure cost estimates for the Landfill each year with the Annual Engineering Inspection Report. These estimates shall also be placed within the operating record (per Reg.22.1301(d)).

2.3.9 Financial Assurance

Evidence of a financial assurance mechanism for closure and post-closure care shall be placed in the operating record and provided to the ADEQ annually. The financial assurance mechanism for the closure and post-closure care of the Facility is in Appendix B of this report.

2.3.10 Site Survey (Reg.22.1301(i))

Upon completion of the installation of the final cover system over the entire Facility, the site shall be surveyed by a registered professional surveyor in the State of Arkansas to document the final elevations of the Class 3N facility, the location of the surface improvements (i.e., monitoring points, etc.), site boundaries, and areas that received waste. Final closure of the site will be achieved when the permitted area has been filled and the final cover system installed. Closure will be considered complete after the final cover has been inspected and approved by the ADEQ. The final cover plan and typical final cover details for the Facility are included in this permit application plan set (see Appendix A of the permit application).

2.4 Closure Documentation

2.4.1 Land Use Restrictions (Reg.22.1301(j) and (k))

Following placement of final cover over the entire Facility, a notation shall be recorded on the deed to the property. The Director of the ADEQ shall be notified that the notation has been recorded and a copy has been placed in the operating record. The notation on the deed must inform any potential purchaser of the property of the following:

1. The past use of the land was as a solid waste disposal facility.
2. Future use shall comply with the ADEQ regulations and shall not disturb the integrity of the final cover system, the liner system, or any other components of the containment or monitoring system.

3. It shall be unlawful for any person, partnership, company, corporation, or other entity to build, erect, or construct any house, home, or building to be used for residential purposes.

The restriction of residential construction applies only to the areas actually used for solid waste disposal. The owner may request permission from the Director of the ADEQ to remove the notation from the deed if all wastes are removed from the Facility.

2.4.2 Closure Certification (Reg.22.1301(l))

Following closure of the Facility, the Director of the ADEQ shall be provided a certification, signed by a registered professional engineer in the State of Arkansas, verifying that closure has been completed in accordance with this Closure Plan, and that the certification has been placed in the operating record. A final closure construction report shall accompany the certification that includes, at a minimum:

1. The final survey, in accordance with Reg.22.1301(i);
2. Quality control and quality assurance data documenting proper construction and installation of the final cover system;
3. A copy of the deed notation required under Reg.22.1301(j); and,
4. Other information that the ADEQ may deem necessary to making the certification described in Reg.22.1301(m).