

CLOSURE PLAN

CCR 257.102(b)

Landfill Area

Pirkey Power Plant
Hallsville, Texas

October, 2016
(Revised December, 2021)

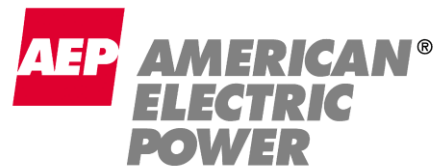
Prepared for: Southwestern Electric Power Company - Pirkey Plant

Hallsville, Texas

Prepared by: American Electric Power Service Corporation

1 Riverside Plaza

Columbus, OH 43215



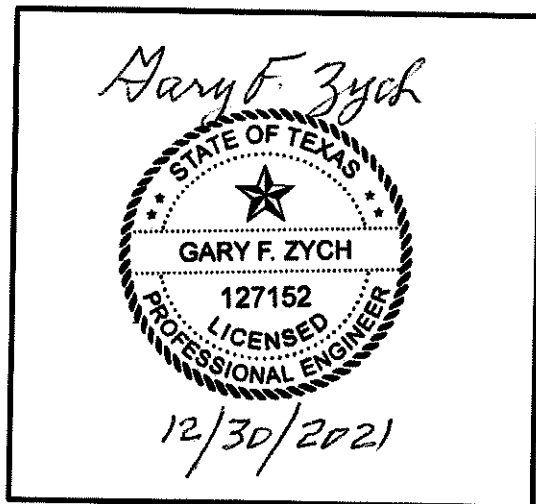
GERS – 21 – 085

CLOSURE PLAN
CCR 257.102(b)
PIRKEY POWER PLANT
LANDFILL AREA

PREPARED BY Brett A. Dreger DATE 12/29/2021
Brett A. Dreger, P.E.

REVIEWED BY Gary F. Zych DATE 12/30/2021
Gary F. Zych, P.E.

APPROVED BY Gary F. Zych DATE 12/30/2021
Gary F. Zych, P.E.
Section Manager –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.

Table of CONTENTS

| | |
|---|----------|
| 1.0 OBJECTIVE..... | 4 |
| 2.0 DESCRIPTION OF THE CCR UNIT..... | 4 |
| 3.0 DESCRIPTION OF CLOSURE PLAN 257.102(b)(1)(i) | 4 |
| 4.0 CLOSURE IN PLACE 257.102 (b)(1)(iii)..... | 5 |
| 4.1 CLOSURE PERFORMANCE STANDARDS 257.102 (d)(1)..... | 5 |
| 4.2 DRAINING AND STABILIZING OF THE SURFACE IMPOUNDMENT 257.102(d)(2)..... | 6 |
| 4.3 FINAL COVER SYSTEM 257.102 (d)(3) | 6 |
| 5.0 ESTIMATE OF MAXIMUM CCR VOLUME 257.102 (b)(1)(iv) | 7 |
| 6.0 ESTIMATE OF LARGEST AREA OF CCR REQUIRING COVER 257.102 (b)(1)(v)..... | 7 |
| 7.0 CLOSURE SCHEDULE 257.102(b)(1)(vi)..... | 7 |

1.0 OBJECTIVE

This report was prepared by AEP- Geotechnical Engineering Services (GES) section to fulfill requirements of CCR 257.102(b) (30 TAC 352.1221) for Closure Plans of Existing CCR Units.

2.0 DESCRIPTION OF THE CCR UNIT

The Henry W. Pirkey Power Station is located at 2400 FM 3251 and south of Hallsville, Texas. It is owned and operated by Southwestern Electric Power Company (SWEPCO). The facility operates a landfill for the disposal of CCR materials.

The Pirkey Landfill is a Class 2, Industrial Solid Waste Facility per the Texas Commission on Environmental Quality, Industrial Solid Waste Management Technical Guideline No. 3.

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 Pirkey Landfill will be closed in place periodically throughout the life capacity of the facility. Closure of the landfill will be done in accordance with the Texas Commission on Environmental Quality (TCEQ) Industrial Solid Waste Management Technical Guideline No. 3. The closure will consist of regrading the existing onsite materials and the installation of an impermeable cap (geomembrane) system with either a vegetative cover or an artificial turf cover.

The Texas guidelines for the cap system of a Type 2 solid waste facility consists of:

- 3-feet of compacted clay (1.0×10^{-7} cm/sec)
- 18-inches of vegetative cover soil

The CCR Rule states that the cap system shall be no less permeable than the base liner. The base liner of the unclosed area at the landfill was constructed as a composite liner consisting of geosynthetic clay liner and a geomembrane. Since the base liner includes a geomembrane which is less permeable than compacted clay, the cap system will need to be modified to include a geomembrane.

Environmental Services have discussed the modified composite cap system with the Texas Commission of Environmental Quality (TCEQ). TCEQ only considers that a geomembrane is equivalent to 12-inches of compacted clay. Therefore, the modified cap to be compliant with both the CCR Rule and TCEQ Guidelines and will consist of:

- 2-feet of compacted clay (1.0×10^{-7} cm/sec)
- Geomembrane
- Geocomposite on slopes steeper than 10%
- 24-inches of vegetative cover soil

Environmental Services has also discussed an alternate engineered turf cap system with the Texas Commission of Environmental Quality (TCEQ). TCEQ has considered an alternate cap system consisting of engineered turf material. Therefore, the alternate cap system to be compliant with both the CRR Rule and TCEQ guidelines and will consist of:

1.5-feet of Intermediate Soil Cover
50 Mil LLDPE Micro-spike Geomembrane
Agru - Engineered Turf Material
2-inches of Sand Ballast Infill Material

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.]

The final modified composite cap system will consist of a flexible geomembrane that will have a permeability that is less than or equal to the permeability of the natural subsoils and is no greater than 1×10^{-5} cm/sec. In addition to the minimum requirements for the closure plan set by the CCR rule 257.102(b), the Texas Commission on Environmental Quality (TCEQ) guidelines state that the closure plan will include two (2) feet of compacted clay cap with a hydraulic conductivity no greater than 1×10^{-7} cm/sec be placed below the geomembrane layer. Over the geomembrane will be installed a geocomposite material and an infiltration layer consisting of 18" of earthen material and an erosion layer consisting of 6" of earthen material that is capable of sustaining native plant growth. The final cover will be seeded and mulched to promote growth of a vegetative cover. The final cover slope will be a minimum of 2% and will convey water to a TPDES permitted outfall.

The final engineered turf cap system will consists of 1.5 feet of intermediate soil cover over the final graded CCR material with a 50 Mil LLDPE Micro-Spike geomembrane cover. Over the geomembrane will be installed an Agru – Engineered Turf Material that will be covered with 2-inches of sand ballast infill material. The final cover slopes will be a minimum of 2% and will convey water to a TPDES permitted outfall.

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 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 will cover the CCR material and will have a permeability that is no less than the base liner is no greater than 1×10^{-5} cm/sec.

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 landfill 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 landfill facility will be either vegetated or covered with artificial turf material to prevent erosion. Maintenance of the final cover system will include mowing the vegetated areas and replenishing the sand ballast infill as needed.

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 modified composite cap system will consist of a flexible geomembrane that will have a permeability that is less than or equal to the permeability of the natural subsoils and is no greater than 1×10^{-5} cm/sec. In addition to the minimum requirements for the closure plan set by the CCR rule 257.102(b), the Texas Commission on Environmental Quality (TCEQ) guidelines state that the closure plan will include two (2) feet of compacted clay cap with a hydraulic conductivity no greater than 1×10^{-7} cm/sec be placed below the geomembrane layer. Over the geomembrane will be installed a geocomposite material and an infiltration layer consisting of 18" of earthen material and an erosion layer consisting of 6" of earthen material that is capable of sustaining native plant growth. The final

cover will be seeded and mulched to promote growth of a vegetative cover. The final cover slope will be a minimum of 2% and will convey water to a TPDES permitted outfall.

The final engineered turf cap system will consist of 1.5 feet of intermediate soil cover over the final graded CCR material with a 50 Mil LLDPE Micro-Spike geomembrane cover. Over the geomembrane will be installed an Agru – Engineered Turf Material that will be covered with 2-inches of sand ballast infill material. The final cover slopes will be a minimum of 2% and will convey water to a TPDES permitted outfall.

The final cover slopes will be a minimum of 2% and will convey water to a TPDES permitted outfall. The final cover slope will also be a minimum of 2% to accommodate settling and subsidence.

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 estimated maximum CCR volume on-site is 18,500,000 Cubic Yards of CCR material for the Landfill Area.

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 requiring a final cover is 17 acres for the Landfill Area.

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 once it reaches final grades. The Pirkey Plant will cease coal-fired generation at the end of March 2023. Closure of the other CCR units at the power plant must be completed before the landfill initiates final closure. Once final closure of the landfill commences, the work will be completed within six months as per the CCR Rule 257.102.