



**Amended
CCR Surface Impoundment Closure Plan**

**Limestone Electric Generating Station
Jewett, Texas**

February 2020

Prepared For

NRG Texas Power LLC

CERTIFICATION

Amended CCR Surface Impoundment Closure Plan

Limestone Electric Generating Station

I, the undersigned Texas Professional Engineer, hereby certify that I am familiar with the technical requirements of Title 40 Code of Federal Regulations Part 257 Subpart D (§257). I certify that it is my professional opinion that this document meets the requirements for a written closure plan prepared pursuant to 40 CFR 257.102. I certify that this document was prepared by me and that I am a registered professional engineer under the laws of the State of Texas.

For the purpose of this document, "certify" and "certification" shall be interpreted and construed to be a "statement of professional opinion". The certification is understood and intended to be an expression of my professional opinion as a Texas Licensed Professional Engineer, based upon knowledge, information, and belief. The statement(s) of professional opinion are not and shall not be interpreted or construed to be a guarantee or a warranty of the analysis herein.

Richard D. Varnell
Printed Name of Professional Engineer


Signature of Professional Engineer

135525
Texas License Number

2/27/2020
Date



FIRM #3775

TABLE OF CONTENTS

CERTIFICATION	i
TABLE OF CONTENTS.....	ii
1. INTRODUCTION & PURPOSE	1
2. CLOSURE PLAN NARRATIVE DESCRIPTION	1
3. REMOVAL & DECONTAMINATION PROCEDURES	2
4. ESTIMATED MAXIMUM INVENTORY OF CCR	3
5. CLOSURE SCHEDULE.....	3
6. AMENDMENTS TO CLOSURE PLAN	4
7. COMPLETION OF CLOSURE ACTIVITIES	4

1. INTRODUCTION & PURPOSE

Federal CCR Rule Reference: 40 CFR 257.102(b)

Pursuant to 40 CFR 257.102(b), this document provides the written closure plan for the existing coal combustion residual (CCR) surface impoundment, Unit 003 Secondary E Pond, at NRG Texas Power LLC's (NRG) Limestone Electric Generating Station (Station). NRG intends to close the Secondary E Pond in compliance with the requirements of 40 CFR 257.102(c), through removal of CCR and decontamination of all areas affected by releases from the CCR unit.

Four surface impoundments that were included in the initial October 7, 2016 CCR Surface Impoundment Closure Plan for the Limestone Electric Generating Station were subsequently determined by NRG to no longer meet the definition of CCR units per the CCR Rule and are no longer managed as CCR surface impoundments at the Station. Those four impoundments are:

- Unit Bottom Ash Cooling Pond (BACP);
- Unit 019 E Pond;
- Unit ST-18; and
- Unit 002 Storm Water Pond.

Therefore, these four impoundments are not included in this Amended Closure Plan.

2. CLOSURE PLAN NARRATIVE DESCRIPTION

Federal CCR Rule Reference: 40 CFR 257.102(b)(1)(i), 40 CFR 257.102(b)(1)(ii), and 40 CFR 257.102(c)

The anticipated closure by removal of CCR and decontamination of all areas affected by releases of CCR for the Secondary E Pond at the Limestone Electric Generating Station will be performed in accordance with the following sequential steps:

1. Diversion of CCR, low volume waste, and/or storm water streams to the appropriate Station facilities.
2. Removal of process piping (where applicable).
3. Dewatering of the Secondary E Pond and in situ CCR sufficiently to allow for removal of the CCR.
4. Removal of CCR from the Secondary E Pond for transportation to and disposal in a permitted landfill or for beneficial use.
5. Removal of any protective cover layers (e.g., riprap) along the impoundment's bottom and/or side slopes (where applicable).
6. Based on visual observation of CCR, decontamination of the clay liner and all areas that were affected by CCR releases by overexcavating an additional 6-inch thickness of material.
7. Compliance with Texas Commission on Environmental Quality (TCEQ) requirements for CCR surface impoundment closure if applicable.
8. Certification by a qualified professional engineer in the State of Texas that the closure has been completed in accordance with the Amended Closure Plan in effect at that time.

9. Restoration of the area formerly occupied by the Secondary E Pond.

Restoration of the area formerly occupied by the Secondary E Pond will be contingent upon NRG's intended use for the area after the successful closure. NRG will select the method of final restoration during implementation of the closure activities, and this Amended Closure Plan will be subsequently amended as appropriate.

3. REMOVAL & DECONTAMINATION PROCEDURES

Federal CCR Rule Reference: 40 CFR 257.102(b)(1)(ii) and 40 CFR 257.102(c)

Closure of the Secondary E Pond at the Limestone Electric Generating Station will follow the sequential steps as outlined in Section 2 of this Amended Closure Plan.

After the flow of CCR and non-CCR wastestreams into the Secondary E Pond has ceased, NRG will dewater the Secondary E Pond and the CCR stored therein. The free liquid may be reused in plant operations or possibly discharged as allowed by the Texas Pollutant Discharge Elimination System (TPDES) permit in effect at the time of closure. Best management practices (BMPs) will be deployed. Perimeter drainage ditches may be cut through the *in situ* CCR within the Secondary E Pond to further passively dewater the material using gravity prior to removal. Also, CCR may be piled within the CCR surface impoundments to promote dewatering.

Once the CCR within the Secondary E Pond has been sufficiently dewatered for transportation and disposal purposes, mechanical excavators will be used to remove the CCR, protective layers (e.g., riprap), and portions of the liner material, if it became intermixed with CCR, from within the impoundment. Based on visual observation for CCR, excavation will continue until CCR has been removed. The clay liner and all areas affected by CCR releases will then be over excavated a minimum additional depth of 6 inches to complete decontamination of the Secondary E Pond area. The excavated material will be placed into haul trucks for disposal at a permitted landfill or a beneficial use project. At the time of closure, the Station may elect to dispose of the excavated material at their on-site permitted industrial non-hazardous waste landfill, Unit 004 Landfill. TCEQ required closure activities will also be performed during the decontamination phase of the project if required.

The ongoing groundwater monitoring program for the Secondary E Pond is being performed per 257.94, which is anticipated to continue during the remaining active life of the impoundment. Therefore, groundwater protection standards (GWPS) have not been established per 257.95 for the Secondary E Pond. It is anticipated that the impoundment will remain in detection monitoring during its remaining active life, as well as during implementation of the closure activities described in this Amended Closure Plan. The Secondary E Pond also meets the location restrictions criteria provided in 257.60 through 257.64. Therefore, as long as groundwater has been determined to not be impacted, the ongoing detection monitoring program will cease after completion of the closure activities and posting of the Notification of Completion of Closure to NRG's publicly accessible CCR website. The monitoring wells making up the Secondary E Pond groundwater monitoring system will then be properly closed and abandoned per applicable State of Texas requirements.

4. ESTIMATED MAXIMUM INVENTORY OF CCR

Federal CCR Rule Reference: 40 CFR 257.102(b)(1)(iv)

A reasonably conservative estimate of the maximum inventory of CCR within the Secondary E Pond can be calculated by considering that 50 percent of the impoundment’s capacity is filled with CCR prior to being removed. This is conservative because NRG typically removes CCR from the Secondary E Pond before the accumulation of CCR reaches this volume. Table 1 provides the estimated maximum inventory of CCR for the Secondary E Pond.

**Table 1: Estimated Maximum Inventory of CCR
Within Each CCR Surface Impoundment**

CCR Surface Impoundment	Estimated Maximum Inventory of CCR (cy)
Unit 003 Secondary E Pond	36,000 ¹

Notes: 1) Based on one-half of the 45 acre-foot volume of the Unit 003 Secondary E Pond as reported by NRG.

5. CLOSURE SCHEDULE

Federal CCR Rule Reference: 40 CFR 257.102(b)(1)(vi)

Closure of the Secondary E Pond is estimated to require approximately one year from the date that CCR and non-CCR wastestreams cease being discharged to the Secondary E Pond. Table 2 provides a listing of major milestones necessary to close the Secondary E Pond, with an estimated duration and an estimated year of completion for each milestone. NRG anticipates that all closure activities for the Secondary E Pond will be complete by 2021.

Table 2: Planning Level Schedule for Closure of the Secondary E Pond		
Task Description	Estimated Duration	Estimated Completion Year
Place Amended Closure Plan into the Facility Operating Record (FOR).	1 Day	2020
Send Notification of the Availability of the Amended Closure Plan to the Texas Commission of Environmental Quality (TCEQ) and Post the Amended Closure Plan to NRG’s CCR Website.	1 Month	2020
Final Engineering / TCEQ Notification if Required.	6 Months	2020
Termination of CCR, Low Volume Waste, and Storm Wastestream Discharges.	1 Month	2020
Place Notification of Intent to Close into the FOR.	1 Month	2020
Dewatering of the CCR Surface Impoundment and <i>In Situ</i> CCR.	3 Months	2020

Table 2: Planning Level Schedule for Closure of the Secondary E Pond		
Task Description	Estimated Duration	Estimated Completion Year
Removal of CCR, Protective Cover Layer, and Intermixed Soils (If Applicable) and Decontamination of the Clay Liner and All Areas Affected by CCR Releases by Overexcavation of a Minimum 6-inch Thickness of Material, based on Visual Observation of CCR. Also Implement TCEQ Closure Requirements During this Period if Required.	9 Months	2021
Conclude Groundwater Monitoring (if Applicable)	1 Month	2021
Restoration of Former CCR Surface Impoundment Areas.	5 Months	2021
Certification of Completion of Closure by a Qualified Texas Professional Engineer.	1 Month	2021
Place Notification of Completion of Closure into the FOR.	1 Month	2021
Send Notification of Completion of Closure to TCEQ and Post Notification of Completion of Closure to NRG's publicly accessible CCR Website.	1 Month	2021

6. AMENDMENTS TO CLOSURE PLAN

Federal CCR Rule Reference: 40 CFR 257.102(b)(3)

NRG will amend this Amended Closure Plan prior to a change in the operation of any of the existing CCR surface impoundments that would substantially affect the written Amended Closure Plan in effect or after an unanticipated event necessitates a revision to the written Amended Closure Plan. If this written Amended Closure Plan is revised, NRG will retain a qualified professional engineer licensed in the State of Texas to provide written certification that amendments to this Amended Closure Plan meet the requirements of 40 CFR 257.102(b).

7. COMPLETION OF CLOSURE ACTIVITIES

Federal CCR Rule Reference: 40 CFR 257.102(f)(3)

Upon completion of closure for the Secondary E Pond, NRG will obtain a certification from a qualified professional engineer licensed in the State of Texas verifying that the Secondary E Pond has been closed in accordance with the Amended Closure Plan in effect at the time of closure.