

Closure Plan Dolet Hills Fly Ash / Scrubber Sludge Landfill



CLECO Corporation

**Dolet Hills Power Station
Project No. 90965**

**Revision 1
April 2018**

Closure Plan Dolet Hills Fly Ash / Scrubber Sludge Landfill

prepared for

**CLECO Corporation
Dolet Hills Power Station
DeSoto Parish, Louisiana**

Project No. 90965

**Revision 1
April 2018**

prepared by

**Burns & McDonnell Engineering Company, Inc.
Kansas City, Missouri**

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INDEX AND CERTIFICATION

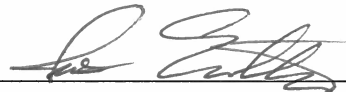
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Certification

I hereby certify, as a Professional Engineer in the state of Louisiana, that the information in this document was assembled under my direct personal charge. This report is not intended or represented to be suitable for reuse by the CLECO Corporation or others without specific verification or adaptation by the Engineer.



Jason C Eichenberger, P.E.
Louisiana License #42246

Date: 4/13/2018

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LIST OF ABBREVIATIONS

<u>Abbreviation</u>	<u>Term/Phrase/Name</u>
BMcD	Burns & McDonnell
CCR	Coal Combustion Residual
CFR	Code of Federal Regulations
CLECO	CLECO Corporation
cm/sec	Centimeters/Second
CY	Cubic Yards
Dolet Hills	Dolet Hills Power Station
EPA	Environmental Protection Agency
Landfill	Fly Ash / Scrubber Sludge Landfill
LDEQ	Louisiana Department of Environmental Quality
RCRA	Resource Conservation and Recovery Act
U.S.C.	United States Code

1.0 INTRODUCTION

On April 17, 2015, the Environmental Protection Agency (EPA) issued the final version of the federal Coal Combustion Residual Rule (CCR Rule) to regulate the disposal of coal combustion residual (CCR) materials generated at coal-fired units. The rule will be administered as part of the Resource Conservation and Recovery Act ([RCRA, 42 United States Code [(U.S.C.)] §6901 et seq.]), using the Subtitle D approach.

The existing CCR unit at CLECO Corporation's (CLECO's) Dolet Hills Power Station (Dolet Hills) is subject to the CCR Rule and as such CLECO is required to develop a Closure Plan per 40 Code of Federal Regulations (CFR) §257.102. This report serves as the Closure Plan for the Fly Ash / Scrubber Sludge Landfill (Landfill) at Dolet Hills.

This closure plan is in addition to, not in place of, any other applicable site permits, environmental standards, or work safety practices.

2.0 PLAN OBJECTIVES

Per 40 CFR §257.102, the Closure Plan must contain the following:

- A description of how the CCR unit will be closed.
 - For closure through leaving CCR in place:
 - A description of the final cover system and methods used to install the final cover, including methods for achieving performance standards specified in 40 CFR §257.102(d).
- An estimate of the maximum inventory of CCR material ever stored in the CCR unit over its active life.
- An estimate of the largest area of the CCR unit ever requiring a final cover.
- A schedule for completing closure activities, including the anticipated year of closure and major milestones for permitting and construction activities.

Additionally, CLECO is required to develop a Post-Closure Plan per 40 CFR §257.104, which will be covered in a separate document.

Per 40 CFR §257.102(b)(4), CLECO must obtain certification from a qualified professional engineer that the closure plan, and subsequent updates to the plan, meet the requirements of 40 CFR §257.102. This sealed document serves as that certification.

3.0 EXISTING CONDITIONS

Dolet Hills is located east of Mansfield in DeSoto Parish, Louisiana. Dolet Hills contains one CCR landfill which is permitted by the Louisiana Department of Environmental Quality (LDEQ Permit No. P-0064). The Landfill receives lignite and waste byproducts (fly ash and scrubber sludge), and periodically receives bottom ash which has been removed from the existing CCR surface impoundments.

3.1 CCR Inventory

At the end of its active life, the Landfill will consist of approximately 161 acres with approximately 34,400,000 cubic yards (CY) of capacity. Per the permit, the largest area that should ever require a final cover at any given point in time is 40 acres. To comply with this requirement, a cap meeting the CCR Rule's permeability performance standard will be installed in stages throughout the operating life of the landfill. A site plan is included in Appendix A.

4.0 CLOSURE METHOD

The Landfill will be closed through leaving CCR material in place. Procedures planned for closing the CCR unit are described in detail herein.

4.1 Final Cover System Requirements

Per the CCR Rule, the final cover system must be designed and constructed to meet the following criteria pursuant to 40 CFR §257.102(d):

- Have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present, or a permeability no greater than 1×10^{-5} centimeters per second (cm/sec), whichever is less.
- The infiltration of liquids through the closed CCR unit must be minimized by the use of an infiltration layer that contains a minimum of 18 inches of earthen material.
- The erosion of the final cover system must be minimized by the use of an erosion layer that contains a minimum of six inches of earthen material that is capable of sustaining native plant growth.
- The disruption of the integrity of the final cover system must be minimized through a design that accommodates settling and subsidence.
- The owner or operator may select an alternative final cover system design, provided the alternative final cover system [meets the above requirements].

4.1.1 Geometry and Stormwater Management

The geometry and stormwater management controls of the closed Landfill will allow the CCR unit to meet the following requirements as outlined in 40 CFR §257.102(d) of the CCR Rule:

- Control, minimize or eliminate, to 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.
- Prevent future impoundment of water.
- Provide for slope stability to protect against sloughing or movement of the final cover system.

The closure system will be designed to provide adequate drainage during storm events. Material will be graded in order to promote stability of the cover system, to prevent the collection of standing water, to limit the velocity of storm water runoff, and to reduce the potential for soil erosion.

4.1.2 Permeability and Infiltration

Once the final grade of the CCR landfill is established, the final cover system will be placed over the closure extents to minimize infiltration into the consolidated waste material and minimize erosion of the cap. Per 40 CFR §257.102(d), the final cover system will consist of, at minimum, an 18-inch infiltration layer and 6-inch erosion layer. The permeability of the final cover system will be equal to that of the bottom liner system and natural subsoils present, or no greater than 1×10^{-5} cm/sec, whichever is less. Per the current permit, CLECO may select an alternative final cover system design, provided the alternative cover system is designed and constructed to meet the criteria of the CCR Rule and is approved by LDEQ.

During installation of the cover soils, proper quality control methods will be used to ensure the following:

- The selected cover material is suitable;
- The material meets the minimum federal and state thickness and permeability requirements;
- The material is properly placed and compacted; and
- The material is properly protected before, during, and after construction.

The erosion layer will consist of topsoil and will be seeded with native vegetation. The period of time for greatest soil erosion concern will be immediately after placement of the topsoil material, before vegetation is established. Manufactured erosion control products, as well as a seed mix containing quick-growth seed varieties, will aid in erosion prevention during this critical timeframe.

4.1.3 Integrity of the Final Cover

Settling and subsidence of the final cover system is expected to be minimal. The underlying natural subsoils at the site are overconsolidated clays and silts that are not prone to long-term settlement. Settlement would potentially be caused by consolidation of the CCR material or general fill material under new loads from construction activities; however, this settlement will occur for the duration of site grading activities and is expected to be minimal after the cover soil is installed. General fill, if necessary, will be installed in a controlled manner to minimize post-fill installation settlement.

5.0 CLOSURE SCHEDULE

Burns & McDonnell developed a preliminary schedule (see Table 5-1) outlining the critical scope and timeline necessary for the CCR unit closure at Dolet Hills. Per 40 CFR §257.102(f) of the CCR Rule, closure must be completed within six months of initiating closure activities. At this time, the anticipated closure trigger for the Landfill is the final receipt of waste. The anticipated year of closure for the Landfill is no sooner than 2034, with the actual closure date dependent on plant operations.

Table 5-1: Preliminary Closure Schedule

Closure Activity	Timeframe (Working Days)	Accumulated Duration (Working Days)
Preparation for Closure		
Permitting / design	120	120
Submit Notification of Intent to Close to LDEQ	20	140
Design documents issued for bid	0	140
Bid period	15	155
Bid evaluation	10	165
Contract Award	20	185
Final placement of CCR material	0	185
Commence construction / mobilization	30	215
Closure Construction		
Insect / rodent inspection	1	216
Grading / compaction of landfilled material	15	231
Install infiltration layer	50	281
Install erosion layer (topsoil)	20	301
Seeding	20	321
Modification of Runoff Diversion System (if necessary)	5	326
LDEQ inspection	20	346
Site clean-up / demobilization	10	356
Closure Completion		
Submit Notification of Completion of Closure	20	366

Closure of the existing CCR unit will commence no later than 30 days after the known final receipt of waste. No later than the date CLECO initiates closure of the Landfill, a Notification of Intent to Close the CCR unit certified by a qualified professional engineer will be placed in the facility's CCR Operating Record. The notification will then be placed on CLECO's CCR public website within 30 days.

For the purposes of this Closure Plan, closure of the Landfill is considered complete after the erosion layer has been seeded and stabilized. From there, the Post-Closure Care Period for the Landfill will commence.

Within 30 days of completion of closure of the CCR unit, a Notification of Closure of the CCR unit will be prepared and placed in the facility's CCR Operating Record and on CLECO's CCR public website. This notification will include certification by a qualified professional engineer in the State of Louisiana verifying closure has been completed in accordance with this Closure Plan and the requirements of 40 CFR §257.102.

6.0 REVISIONS AND AMENDMENTS

The initial Closure Plan will be placed in the CCR Operating Record by October 17, 2016. The plan will be amended whenever there is a change in operation of the CCR unit that affects the current or planned closure operations. The Closure Plan will be amended 60 days prior to a planned change in operation, or within 60 days following an unplanned change in operation. If a written Closure Plan is revised after closure activities have commenced, the written Closure Plan will be amended no later than 30 days following the triggering event. The initial Closure Plan and any amendment will be certified by a qualified professional engineer in the State of Louisiana for meeting the requirements of 40 CFR §257.102 of the CCR Rule. Amendments and revisions will be placed on the CCR public website within 30 days following placement in the facility's CCR Operating Record. A record of revisions made to this document is included in Section 7.0.

7.0 RECORD OF AMENDMENTS

Revision Number	Date	Revisions Made	By Whom
0	10/14/2016	Initial Closure Plan	Burns & McDonnell
1	4/13/2018	Updates to reflect permit modifications for lateral expansion	Burns & McDonnell

APPENDIX A - SITE LAYOUT



date 8/10/2016
designed A. MYERS

CLECO CORPORATION
CCR COMPLIANCE DOCUMENTATION
SITE LAYOUT

project	90965
contract	-
drawing no.	SK - CIVIL - 001
rev.	1



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