Closure Plan
Dolet Hills Ash Basin 1

CLECO Corporation

Dolet Hills Power Station
Project No. 90965

Revision 0
10/14/2016

Closure Plan
Dolet Hills Ash Basin 1

prepared for

CLECO Corporation
Dolet Hills Power Station
DeSoto Parish, Louisiana

Project No. 90965

Revision 0
10/14/2016

prepared by

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

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.

Randell L Sedlacek

Randell L Sedlacek, P.E.
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Date: 10/14/16

This document has been digitally sealed and signed. October 14, 2016.

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LIST OF ABBREVIATIONS

Abbreviation	Term/Phrase/Name
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
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 impoundments at CLECO Corporation's (CLECO's) Dolet Hills Power Station (Dolet Hills) are 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 Ash Basin 1 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 two CCR surface impoundments, Ash Basin 1 and Ash Basin 2, which overflow to the Secondary Pond. A site plan is included in Appendix A. The existing ponds were constructed by following the natural topography of the area and building a single shared berm to form a cross-valley configuration. An intermediary berm separates Ash Basin 1 from the Secondary Pond, and the Secondary Pond from Ash Basin 2.

3.1 CCR Inventory

Ash Basin 1 is permitted as a 25.5-acre pond with approximately 650,000 cubic yards (CY) of ash capacity. This volume is also an estimate of the maximum inventory of material that could potentially be store in the impoundment over its active life. This estimated area is the largest area of the impoundment that should ever require a final cover. A site plan is included in Appendix A. CLECO dewaters and removes CCR material from Ash Basin 1 periodically for disposal in the CCR landfill on-site.

4.0 CLOSURE METHOD

Ash Basin 1 will be closed through leaving CCR material in place as noted in the most recent version of the permit documentation. Procedures planned for closing the surface impoundment 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 $1x10^{-5}$ 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 Drainage / Stabilization of CCR Material

Prior to installing the final cover system, Cleco must perform the following activities outlined in 40 CFR §257.102(d) of the CCR Rule:

- Eliminate free liquids by removing liquid wastes or solidifying the remaining wastes and waste residues
- Stabilize remaining wastes sufficiently in order to support the final cover system.

Free liquids will be removed initially, with excess water discharged via Outfall 002. Free liquid removal will be performed throughout construction, as necessary, to manage surface water and storm water runoff.

Additional dewatering may be required to remove entrained water. This can be accomplished through mechanical means such as double-handling and/or discing, or potentially through methods such as the use of a well point system, wick drains, or other means determined by the Contractor, Engineer, or Owner.

4.1.2 Geometry and Stormwater Management

Once stabilized, the impoundment will be backfilled, compacted, and graded to drain to the Secondary Pond. The geometry and stormwater management controls of the closed impoundment 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.

4.1.3 Permeability and Infiltration

Once the grade of the backfilled CCR impoundment is established, the final cover system will be placed over the maximum extents of the impoundment to minimize infiltration into the consolidated waste material and 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 will be equal to that of the bottom liner system and natural subsoils present, or no greater than $1x10^{-5}$ 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.

4.1.4 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 surface impoundment closure at Dolet Hills. Per 40 CFR §257.102(f) of the CCR Rule, closure must be completed within five years of initiating closure activities. At this time, the anticipated closure trigger for Ash Basin 1 is the final receipt of waste, including either CCR or non-CCR streams. Per the 2010 Permit Renewal, the anticipated date of closure for Ash Basin 1 is no sooner than 2025, 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		
Dewatering / stabilization	90	305
Grading / backfill of impoundment	60	365
Install infiltration layer	90	455
Install erosion layer (topsoil)	20	475
LDEQ inspection	20	495
Seeding	20	515
Site clean-up / demobilization	10	525
Closure Completion		
Submit Notification of Completion of Closure	20	545

Closure of the existing CCR surface impoundment will commence no later than 30 days after the known final receipt of waste. No later than the date CLECO initiates closure of the existing CCR surface impoundment, a Notification of Intent to Close the CCR surface impoundment 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 Ash Basin 1 is considered complete after the erosion layer has been seeded and stabilized. From there, the Post-Closure Care Period for Ash Basin 1 will commence.

Within 30 days of completion of closure of the CCR surface impoundment, a Notification of Closure of the CCR surface impoundment 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. All 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 of this document.

7.0 RECORD OF AMENDMENTS

Revision Number	Date	Revisions Made	By Whom
0	10/14/2016	Initial Closure Plan	Burns & McDonnell

APPENDIX A – SITE LAYOUT

BURNS McDONNELL

date 8/10/2016

designed A. MYERS

CLECO CORPORATION

CCR COMPLIANCE DOCUMENTATION

SITE LAYOUT

project 90965

contract -

drawing no. **SK - CIVIL - 001**

rev. **0**

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