



San Miguel Electric Cooperative, Inc.
Atascosa County, Texas

Equalization Pond Closure and Post-Closure Plan
Amendment

June 2020



List of Figures

Figure 1-1 Existing Site Conditions

Definitions and Acronyms

CCR – Coal Combustion Residuals

CFR – Code of Federal Regulations

EQ – Equalization

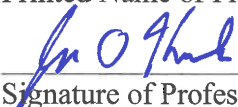
SMEC – San Miguel Electric Cooperative

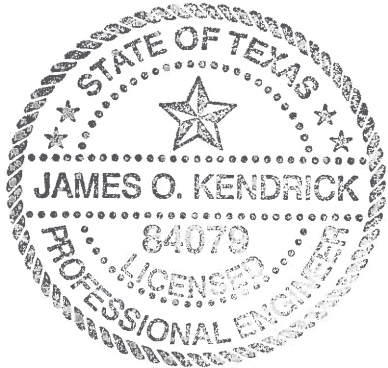
USEPA – United States Environmental Protection Agency



I, the undersigned Texas Professional Engineer, hereby certify that I am familiar with the technical requirements of 40 CFR 257.102. I also certify that it is my professional opinion that, to the best of my knowledge, information, and belief, that the activities outlined in this closure plan are in accordance with current good and accepted engineering practice(s) and standard(s) appropriate to the nature of the project and the technical requirements of 40 CFR 257.102.

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 retrofit activities.

<u>James O. Kendrick</u>	<u>84079</u>
Printed Name of Professional Engineer	Texas License Number
<u></u>	<u>06/11/2020</u>
Signature of Professional Engineer	Date
NewFields Environmental & Engineering, LLC	Firm F-5735





1.0 INTRODUCTION

1.1 General

The San Miguel Electric Cooperative (SMEC) operates an electric power generating station in Atascosa County, Texas. SMEC plans to close their existing Equalization Pond (EQ Pond) pursuant to the current rules for the management of coal combustion residuals (CCR) at 40 CFR Part 257, Subpart D. The EQ Pond is approximately 25 acres in size and a final cover will encompass the entirety of the CCR unit. Maximum capacity of the EQ Pond is approximately 660,000 cubic yards. Estimating the maximum amount of CCR ever in the pond is difficult as non-CCR materials are also deposited in the pond. However, SMEC conservatively estimates 520,000 cubic yards as the maximum volume of CCR and non-CCR material in the pond, based on an October 2019 bathymetric survey. This report addresses the requirements of 40 CFR 257.102 – Written Closure Plan, as it pertains to the EQ Pond at the plant. This closure plan provides for the closure of the CCR unit consistent with recognized and generally accepted good engineering practices. This report amends the initial closure and post-closure plan for the EQ Pond dated October 18, 2016.¹

1.2 Project Objectives

The primary objective of this work is to close the EQ Pond pursuant to 40 CFR 257.102. The pond will be capped and closed in place with a vegetated clay cap. The final cover system will follow the requirements and performance standards outlined in 40 CFR 257.102(d).

1.3 Description of Closure Activities

Figure 1-1 shows the existing site conditions of the EQ Pond. As is typical at power generation stations, closure of unit processes usually must be performed without interruption to the overall system operation. The existing EQ Pond will be closed once discharges are re-routed to the new EQ Basin, currently under construction.²

¹ SMEC's pre-existing certifications under the Federal CCR rules are available at the following website: <http://www.smeci.net/ccr-rule>

² The new EQ Basin will be lined in accordance with the requirements of the Federal CCR rules.

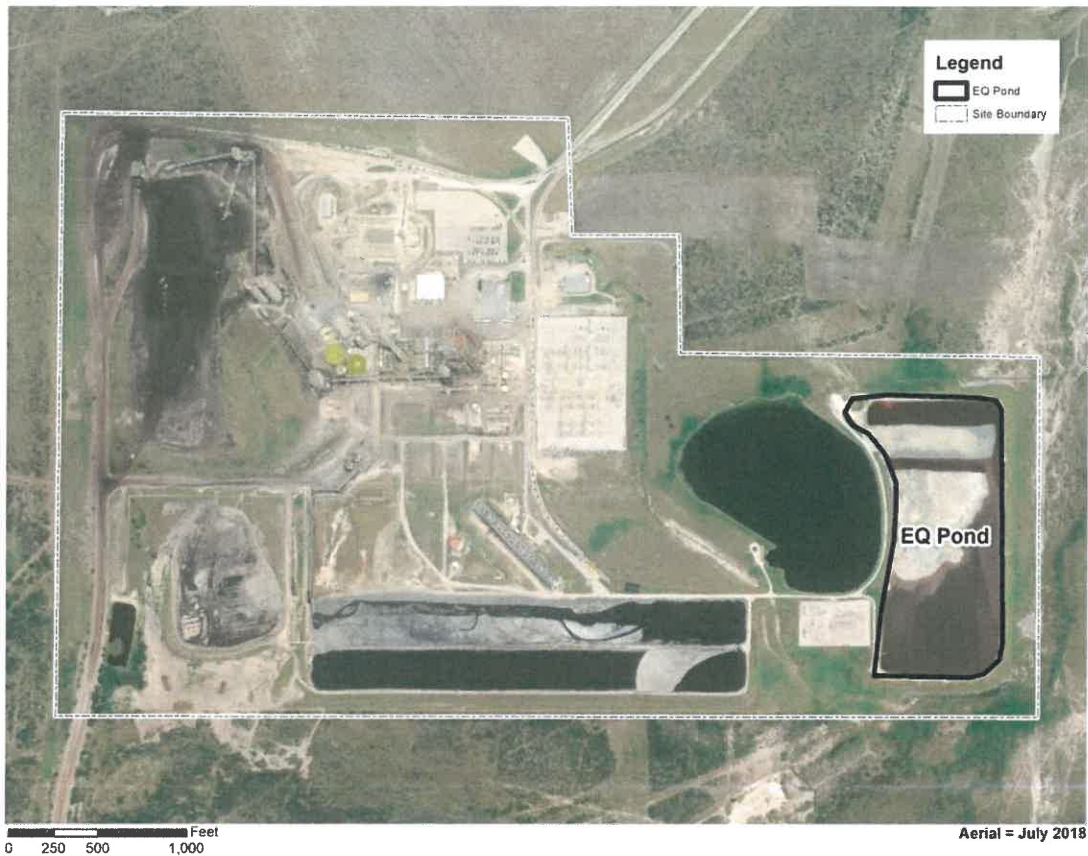


Figure 1-1. Existing Site Conditions

The activities under the Closure Plan are as follows:

1. Dewater EQ Pond
2. EQ Pond grading and compaction
3. Final Cover System installation
4. Stormwater ditch construction

1.3.1 Dewater EQ Pond

Once sources of Plant effluent are diverted to the new, lined EQ Basin, the existing EQ Pond will be dewatered. Surface water in the existing EQ Pond will be allowed to evaporate. Surface water may also be pumped to the retrofitted Ash Ponds, as needed. Dust suppression measures will be implemented as needed to minimize dust as the water surface recedes.

1.3.2 EQ Pond Grading and Compaction

Once the EQ Pond is dewatered, the pond will be re-graded and compacted. The purpose of grading is to more evenly distribute material within the pond to facilitate surface water drainage once the pond is capped. Material from the northern portion of the Pond will be relocated to the



southern portion of the pond to create a more uniform surface. The tops of the berms will be pushed into the pond so that they are level with the material and the entire pond will be graded to gradually slope from west to east radially away from the raw water storage pond. Following grading, the entire surface will be compacted to ensure a non-obstructed surface for the installation of the cap material.

1.3.3 Description of Final Cover System

The final cap for the EQ Pond will be placed over the prepared subgrade to achieve the criteria in 40 CFR 257.102(d)(3). The cap for the EQ Pond will consist of at least 18 inches of compacted clay and at least six inches of topsoil. The permeability of the compacted clay material will be less than or equal to 1×10^{-7} cm/sec. The clay will be placed in nine-inch lifts and compacted to form an at least 18 inch-thick infiltration layer. At least six inches of topsoil will form the erosion layer and be placed on top of the compacted clay. A cross-section of the final cover system is shown in Figure 1-2.

Once installed, the topsoil layer will be prepared by disking, tilling and harrowing, or other methods to prepare the surface for seeding. The topsoil will be seeded with native grasses during climatologically favorable seasons and the seed will be covered with a mulch to protect from erosion and moisture loss. Supplemental watering will be used as needed.

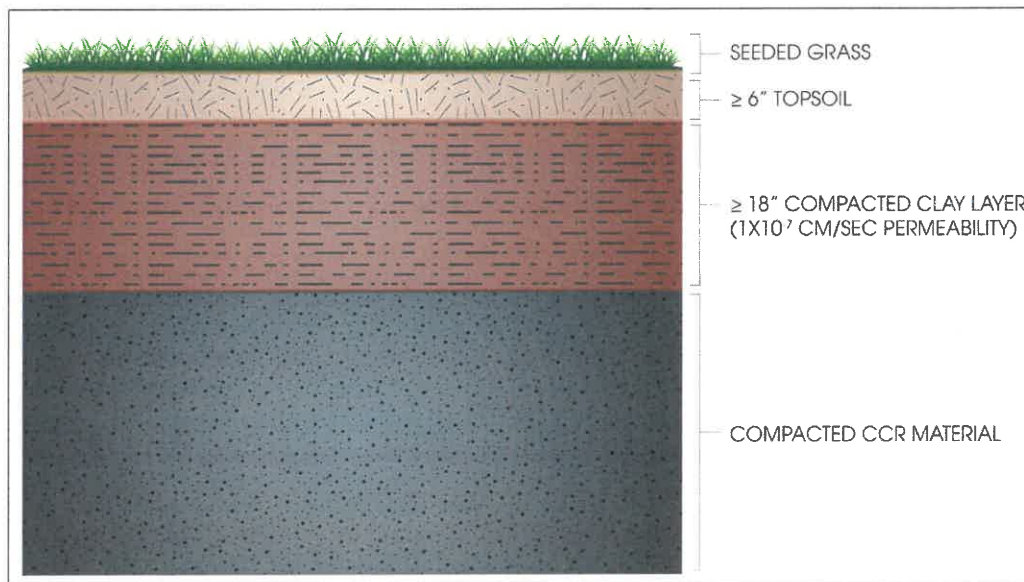


Figure 1-2. Cross-section of final cover layers

1.3.4 Stormwater Ditch Construction

Following completion of the soil cap, a stormwater diversion ditch will be constructed along the western edge of the cap to divert stormwater runoff around the cap.



2.0 Closure Performance Standards

2.1 Minimization of Post-Closure Liquid Infiltration into CCR Waste Mass

The final cover system for the EQ Pond including the compacted subgrade, at least 18 inches of clay cap (with a permeability of 1×10^{-7} cm/sec or less) and at least 6 inches of topsoil with vegetative cover will help to minimize the potential infiltration of water into the underlying CCR material. The soil cap will convey stormwater runoff away from the underlying CCR material. The sloping of the clay cap and drainage channels will promote movement of water away from the CCR mass and help to keep the barrier soils drained to prevent pooling.

The final cover layers also assist in controlling, minimizing, and in some cases eliminating, the post-closure infiltration of liquids into the underlying CCR material. This prevents the release of CCR, leachate, or contaminated runoff to the ground or surface waters and the atmosphere, as required by the CCR performance standards.

2.2 Preclusion of Future Impoundment of Water, Sediment, or Slurry

Closing and capping the EQ Pond as designed will preclude the future impoundment of water, sediment, or slurry. During the closure process, the tops of the berms will be pulled down and the cap will be graded to prevent standing water on the cap.

2.3 Measures to Maintain Slope Stability

In order to maintain slope stability of the final cover, runoff is collected and controlled in highly erodible areas such as the side slopes and graded surface. This is done by grading the final cover to a maximum slope of 3 horizontal to 1 vertical, with a gentle final grade to control slope runoff velocities and volumes. The runoff control plans and shallow slopes prevent erosion, movement, and sloughing of the final cover system, and therefore fulfill the required performance standard.

2.4 Design to Minimize Ongoing Maintenance

The incorporation of slope stability and erosion control measures will help to prevent the need for maintenance on the closed EQ Pond. As a result of these measures, less regrading or soil additions to the final cover system will be necessary.

Additionally, monthly inspections of the EQ Pond will assist in minimizing maintenance. These inspections will help in determining features that will need maintenance in the future, if there are features that can be maintained currently, and may prevent a larger maintenance project in the future. Both the maintenance prevention measures and monthly inspections will minimize the requirement for larger maintenance of the closed EQ Pond, and therefore fulfills the required performance standard.

2.5 Engineering Good Practices

Closure of the EQ Pond will be completed consistent with recognized and generally accepted good engineering practices in the most efficient time frame practical. Field quality assurance/quality control (QA/QC) testing will be utilized to ensure compliance with the project specifications.



3.0 EQ Pond Closure Schedule

The closure of the EQ Pond is anticipated to be completed according to the following schedule milestones:

- The EQ Pond closure plan was finalized in June 2020.
- Placement of CCR and non-CCR waste streams into the EQ Pond are expected to cease by the date specified in the CCR rules.
- Within 120 days after the deadline to cease placement of CCR and non-CCR waste streams into the EQ Pond, standing water will be pumped to the retrofitted ash ponds.
- Within 120 days after the deadline to cease placement of CCR and non-CCR waste streams into the EQ Pond necessary permits for the closure project, including a Stormwater Multi-Sector General Permit, will be secured.
- Grading activities are scheduled to begin within 60 days of securing all necessary permits.
- Clay cap construction and testing will be conducted in a systematic and timely manner. Construction and testing of the soil is not expected to exceed 60 days from the completion of the initial grading activities.
- It is anticipated that closure activities for the EQ Pond will be completed within 10 months after cessation of placement of CCR and non-CCR waste streams into the EQ Pond.
- Post-closure monitoring of the cap and run-on/runoff controls will be conducted on a routine schedule to identify any potential stability issues with the cap and appropriate maintenance to be undertaken.



4.0 EQ Pond Post-Closure Plan

As outlined in the October 18, 2016 Closure and Post-Closure Plan, SMEC will implement post-closure care of the EQ Pond in accordance with 40 CFR 257.104. As outlined in 40 CFR 257.104, post-closure care will consist of:

- Maintaining the integrity and effectiveness of the final cover system, including making repairs to the final cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and runoff from eroding or otherwise damaging the final cover; and
- Maintaining the groundwater monitoring system and monitoring groundwater in accordance with the requirements of 40 CFR 257.90 through 98.

As part of post-closure care for the EQ Pond, SMEC will implement the following activities:

- Monthly inspection and maintenance of the CCR unit final cover system,
- At least semi-annual inspection and maintenance of the associated groundwater monitoring wells,
- Groundwater monitoring sampling, analysis, and reporting,
- Facility Operating Record recordkeeping and reporting posted on the internet site available to the public, and
- Deed recordation.

4.1 Post-Closure Period

In accordance with 40 CFR 257.104(c), the post-closure period for the EQ Pond will be a period of 30 years following certification of completion of closure of the EQ Pond. If at the end of the post-closure care period the EQ Pond is operating under assessment monitoring in accordance with 40 CFR 257.95, SMEC will continue post-closure care until the CCR unit returns to detection monitoring.

4.2 Post-Closure Inspection and Maintenance

SMEC will inspect and maintain the final cover system of the EQ Pond, the associated groundwater monitoring wells, and each associated permanent benchmark throughout the post-closure period. The EQ Pond post-closure care inspection and maintenance requirements are described below with typical types of problems each component may have.

- The final cover system will be inspected for damage resulting from natural or unnatural causes. Maintenance activities may include repairing damage caused by settling or erosion, draining and filling areas collecting ponded water, and re-seeding areas with



inadequate or inappropriate erosion-resistant cover vegetation as necessary to maintain the effectiveness of the final cover system.

- Storm water run-on and runoff control systems will be inspected for damage resulting from natural causes and non-routine facility operations. Storm water run-on and runoff control berms and drainage channels that drain the EQ Pond will be maintained and, as necessary to maintain effectiveness, repaired.
- The groundwater monitoring wells that are part of the EQ Pond monitoring well network will be inspected for condition necessary to provide adequate and representative groundwater samples. Maintenance may include the repair or replacement of damaged, degraded, or missing well caps, identification signs, locking devices, perimeter grading, protective barriers, surface casing, surface pads, and if necessary, the entire well.

SMEC will implement groundwater monitoring during the EQ Pond post-closure care period in accordance with 40 CFR 257.90 through 98.

4.3 Contact Information

The name, address, telephone number, and email address of the person to contact about the EQ Pond at the SMEC plant during the post-closure care period is:

Eric Halfmann, Engineering Manager
San Miguel Electric Cooperative, Inc.
6200 FM 3387
Christine, TX 78012
830-784-3411 x. 244
ehalfmann@smeci.net

4.4 Planned EQ Pond Post-Closure Property Use

SMEC's plan for the closed EQ Pond will consist of limited access to the EQ Pond cap area to reduce potential for damage of the final cover system and the associated groundwater monitoring wells. If the post-closure period of the EQ Pond extends past the date the Plant is decommissioned, the EQ Pond will remain closed to the public or limited to compatible commercial or industrial use.