

CCR Unit Closure and Post-Closure Plan

**CPS Energy
Calaveras Power Station**

San Antonio, Texas

October 14, 2016
Amended December 14, 2020

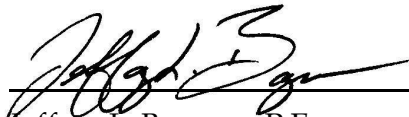
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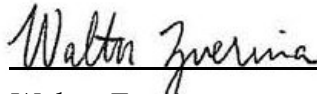
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Calaveras Power Station
Project No. 0503422



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1.0

INTRODUCTION

CPS Energy owns and operates the Calaveras Power Station located in San Antonio, Texas. The Station generates coal combustion residuals (CCR) that are subject to regulation under Title 40, Code of Federal Regulations, Part 257 (40 CFR §257).

This document is the Closure Plan and Post-Closure Plan (CPC Plan) for the following four CCR surface impoundments and one CCR landfill at the Calaveras Power Station:

- Sludge Recycle Holding (SRH) Pond,
- North Bottom Ash Pond (BAP),
- South BAP,
- Evaporation Pond (EP), and
- Fly Ash Landfill (FAL).

This CPC Plan describes the steps necessary to close all the CCR units at any point during the active life of the units by either removing the CCR or leaving CCR in place in accordance with 40 CFR §257.102(b).

This CPC Plan also describes post-closure inspection, maintenance and monitoring required for the CCR units closed with CCR left in place in accordance with 40 CFR §257.102(b).

According to 40 CFR §257.102(b)(3)(i), CPS Energy may amend this closure plan at any time.

Per 40 CFR §257.102(b)(3)(ii), CPS Energy must amend this closure plan whenever:

- There is a change in operation of the CCR unit that would substantially affect the written closure plan in effect; or
- Before or after closure activities have commenced, unanticipated events necessitate a revision of the written closure plan.

1.1

REQUIREMENTS

Regulations in 40 CFR §257.102 et seq. require the preparation, certification, posting on an internet site accessible by the public, and, on closure, implementation of a CPC Plan for each existing active CCR unit. A completed, certified copy of this CPC Plan must be maintained indefinitely in the Calaveras Power Station Operating Record. CPS Energy will issue notifications and implement recordkeeping in accordance with 40 CFR §257.105 and 40 CFR §257.106 (see Section 6).

The requirement to prepare and implement the CPC Plan is applicable to owners and operators of CCR units covered under the rule, including:

- New and existing landfills;
- New and existing surface impoundments;
- CCR units located off-site of the electric utilities' or independent power producers' facilities that receive CCR for disposal; and
- Certain inactive CCR surface impoundments if the CCR unit still contains CCR and liquids.

1.2

DEFINITIONS

This CPC Plan includes terms defined consistent with parts of 40 CFR §257 and associated editions of the Federal Register.

- **Active life or in operation** means the period of operation beginning with the initial placement of CCR in the CCR unit and ending at completion of closure activities in accordance with 40 CFR §257.102.
- **Closed** means placement of CCR in a CCR unit has ceased, and the owner or operator has completed closure of the CCR unit in accordance with 40 CFR §257.102 and has initiated post-closure care in accordance with §257.104.
- **Coal combustion residuals (CCR)** means fly ash, bottom ash, boiler slag and flue gas desulfurization materials generated from burning coal for the purpose of generating electricity by electric utilities and independent power producers.
- **CCR landfill** means an area of land or an excavation that receives CCR and which is not a surface impoundment, an underground injection well, a salt dome formation, a salt bed formation, an underground or surface coal mine, or a cave. For purposes of this subpart, a CCR landfill also includes sand and gravel pits and quarries that receive CCR, CCR piles, and any practice that does not meet the definition of a beneficial use of CCR.
- **CCR surface impoundment** means a natural topographic depression, manmade excavation, or diked area, which is designed to hold an accumulation of CCR and liquids, and the unit treats, stores, or disposes of CCR.
- **CCR unit** means any CCR landfill, CCR surface impoundment, or lateral expansion of a CCR unit, or a combination of more than one of these units, based on the context of the paragraph(s) in which it is used. This term includes both new and existing units, unless otherwise specified.
- **Facility** means all contiguous land, and structures, other appurtenances, and improvements on the land, used for treating, storing, disposing, or otherwise conducting solid waste management of CCR. A facility may consist of several treatment, storage, or disposal operational units (e.g. one or more landfills, surface impoundments, or combinations of them).

- **Inactive CCR surface impoundment** means a CCR surface impoundment that no longer receives CCR on or after October 19, 2015 and still contains both CCR and liquids on or after October 19, 2015.
- **Qualified professional engineer** means an individual who is licensed by a state as a Professional Engineer to practice one or more disciplines of engineering and who is qualified by education, technical knowledge and experience to make the specific technical certifications required under this subpart. Professional engineers making these certifications must be currently licensed in the state where the CCR unit(s) is located.

2.0

CCR UNIT DESCRIPTION

CPS Energy owns and operates the Calaveras Power Station which consists of three power plants of which two plants (J.T. Deely and J.K. Spruce) are subject to the CCR Rule. The Calaveras Power Station is located in unincorporated Bexar County, Texas, approximately 13 miles southeast of San Antonio. The J.T. Deely Plant began operation in 1977. The J.K. Spruce Plant Unit 1 began operation in 1992 and Unit 2 began operation in 2011.

Currently, CPS Energy maintains five CCR units at the Calaveras Power Station which are subject to the CCR Rule:

- SRH Pond,
- North BAP,
- South BAP,
- Evaporation Pond (EP), and
- Fly Ash Landfill (FAL).

Of these five CCR units, CPS Energy currently only operates three units at the Calaveras Power Station: Evaporation Pond, Fly Ash Landfill, and the SRH Pond. Although the J.T. Deely Power Plant ceased operation at the end of December 2018 and sluiced bottom ash is no longer being received at the Bottom Ash Ponds (BAPs), the BAPs will continue to be monitored until the units have undergone closure. The location of each CCR unit is shown on Figure 1.

2.1

SLUDGE RECYCLE HOLDING POND

The SRH Pond contains CCR sludge from the air pollution control equipment from both plants. The SRH Pond was constructed as a single impoundment with a divider wall that separates the impoundment into the North and South Ponds. A gate present in the divider wall is closed during normal operating procedures, but can be opened. Each pond is approximately 1.5 acres in area and are located east of the plants, adjacent to the BAPs. The SRH Pond began receiving CCR before October 14, 2015 and is still in service. In accordance with 40 CFR §257.53, the SRH Pond is classified as an active existing CCR surface impoundment.

The interior slopes of the SRH Pond is reportedly constructed with a 10-oz. Geotextile and a 30-mil High Density Polyethylene (HDPE) geomembrane over prepared subgrade. The North Pond bottom liner consists of a six-inch layer of 4,000 psi concrete over one-foot of compacted sand overlying a 30-mil HDPE geomembrane. The South Pond bottom liner also has a six-inch layer of 4,000 psi concrete. Under the concrete is one-foot of compacted fill overlying a 10-oz. Geotextile, a 30-mil HDPE geomembrane and another 10-oz. Geotextile. The SRH Pond is separated by a concrete divider wall with a sluice gate that allows the North Pond and South Pond to be isolated from each other. Water is pumped from the SRH Pond to clarifiers via two 18-inch steel pipes. Both ponds have eight-foot-wide concrete overflow chutes that discharge to the South BAP. These overflow chutes are at an approximate elevation of 499.5 feet MSL.

It is estimated that approximately 7 acre-feet is the maximum inventory of CCR to be on-site at one time over the active life of each pond. This estimate is based on a conservative assumption of both ponds being completely full of CCR up to the limits of the freeboard as allowed by the Inflow Flood Control Plan.

2.2 ***BOTTOM ASH PONDS***

The North and South BAPs contain sluiced CCR from the wet feed process at the J.T. Deely Plant. The BAPs were constructed by CPS Energy in 1977 as part of the original plant construction. The North BAP is approximately 6.1 acres in area, while the South BAP is approximately 6.8 acres. They are located east of the plants, adjacent to the SRH Pond.

The BAPs began receiving CCR before October 14, 2015, however, the J.T. Deely Power Plant ceased operation at the end of December 2018 and sluiced bottom ash is no longer being received at the BAPs. In accordance with 40 CFR §257.53, the BAPs are classified as inactive CCR surface impoundments.

The BAPs share a common embankment that separates the ponds. The ponds are reportedly lined with clay, but the thickness and hydraulic conductivity of the clay are unknown. One 24-inch steel pipe in each pond allows water to be returned to the plant for reuse. Additionally, both ponds have two discharge points. The discharge points consist of an outlet structure with a horizontal 12-inch steel discharge pipe at an approximate elevation of 489 feet MSL (bottom drain used to empty the pond), and a vertical 12-inch steel overflow pipe at an approximate of elevation 499 feet MSL (normal operation level pool drain).

The outfall structure is in one corner of each pond (northeast for North BAP and southeast for South BAP) and is partially surrounded by steel sheet piling. The sheet piling and pond berms create an opening for water to reach the discharge pipes. This opening is typically protected by floating sorbent booms. Water from these outlets discharge to Calaveras Lake through a TPDES permitted outfall.

It is estimated that approximately 118 acre-feet is the maximum inventory of CCR to be on-site over the active life of the North and South BAPs. This estimate is based on a conservative assumption of the BAPs being completely full of CCR up to the limits of the freeboard as allowed by the Inflow Flood Control Plan.

2.3 ***EVAPORATION POND***

The EP is located generally northeast of the plants. The EP side and bottom liner consist of a one-foot layer of cohesive soil overlying a 30-mil Polyvinylchloride geomembrane and an additional one-foot of cohesive soil when constructed as a landfill in 1990. The subgrade consists of two-feet of soil, with all large rock removed, and compacted to 90% density. The EP was converted to a fly ash impoundment in 1996.

The EP is a surface impoundment that was constructed and received CCR before October 14, 2015. The EP currently does not receive any CCR but continues to receive non-CCR waste streams. In accordance with 40 CFR §257.53, the EP is classified as an inactive CCR surface impoundment.

The EP received ash washdown water from washing of the air pollution control system and other miscellaneous CCR washdown sources. That waste contained CCR as defined in 40 CFR §257.52.

There are no inlet or outlet structures to the EP. Liquid from ash washdown, boiler chemical cleanouts, and other authorized liquid wastes is trucked to the pond, where it is allowed to evaporate.

It is estimated that approximately 83 acre-feet is the maximum inventory of CCR to be on-site over the active life of the EP. This estimate is based on a conservative assumption of the EP being completely full of CCR up to the limits of the freeboard as allowed by the Inflow Flood Control Plan.

2.4

FLY ASH LANDFILL

The Fly Ash Landfill (FAL) is a Class 2 landfill constructed by CPS Energy in 1990 to increase the on-site disposal storage capacity of CCR wastes, prior to construction of the J.K. Spruce Plant. The FAL is located generally northeast of the plant.

It receives CCR wastes consisting of bottom ash, fly ash, scrubber solids, coal dust, gypsum, fly ash dust bags, and ion exchange resin waste generated by plant operations. Those wastes contain CCR as defined in 40 CFR §257.52.

The FAL has an approximate total area of 23 acres. According to as-built drawings provided by CPS Energy, the bottom of the landfill is lined with a 30-mil High Density Polyethylene (HDPE) with a geotextile cushion and sand drainage layer. A geocomposite drainage net covered by two feet of coarse CCR provides the drainage layer over the liner on the interior embankments of the landfill.

The FAL is a landfill that was constructed and received CCR before October 14, 2015. In addition, the FAL currently receives CCR. In accordance with 40 CFR §257.53, the FAL is classified as an active existing CCR landfill.

It is estimated that approximately 550 acre-feet is the maximum inventory of CCR to be on-site over the active life of the FAL. This estimate is based on a conservative assumption of the FAL being completely full of CCR up to the limits of the freeboard as allowed by the Run-on/Run-off Control Plan.

3.0

CCR UNIT CLOSURE PLAN

The closure concept for this closure plan is to close three surface impoundments (SRH Pond, North BAP, and South BAP) by removal of CCR. The closure procedures will comply with requirements in 40 CFR §257.102(c).

The closure concept for this closure plan is to close one surface impoundment (EP) and the FAL by leaving CCR in place. The closure procedures will comply with requirements in 40 CFR §257.102(d).

This section describes the steps necessary to close the CCR units at any point during the active life of the CCR units consistent with recognized and generally accepted good engineering practices and in accordance with 40 CFR §257.102(b). A written closure plan for each CCR unit is required by 40 CFR §256.102(b).

Each closure plan for CCR units to be closed by removal of CCR is required to include the following:

- Closure performance standard;
- Narrative description of the closure;
- Description of the procedures to remove the CCR and decontaminate the CCR unit;
- Maximum CCR inventory; and
- Closure schedule.

Each closure plan for CCR units to be closed with CCR in place is required to include:

- Closure performance standard;
- Narrative description of the closure;
- Description of the final cover system;
- Maximum CCR inventory;
- Maximum area covered; and
- Closure schedule.

3.1

CLOSURE PERFORMANCE STANDARDS

The performance standards for closure of the CCR units in this closure plan are:

- For the SRH Pond and the North and South BAPs: Removing CCR and decontaminating each area affected by CCR releases for the CCR unit in accordance with 40 CFR §257.102(c)(closure by removal); and
- For the EP and the FAL: Leaving CCR in place in accordance with 40 CFR §257.102(d)(closure in place).

3.1.1 *Performance Standards for Closure by Removal*

CPS Energy may close any of the CCR units by removing CCR and decontaminating each area affected by releases (if any occurred) from that CCR unit in accordance with 40 CFR §257.102(c) (closure by removal).

CCR removal and decontamination of the CCR unit will be considered completed in accordance with 40 CFR §257.102(c) when each constituent concentration throughout the CCR unit and each area affected by releases from that CCR unit have been removed and groundwater monitoring concentrations do not exceed the groundwater protection standard established in 40 CFR §257.95(h) for each constituent listed in 40 CFR §257, Appendix IV.

In addition, requirements for closure of the CCR unit by removal of CCR may also include using the Texas Commission on Environmental Quality (TCEQ) Texas Risk Reduction Program (TRRP) in accordance with 30 Texas Administrative Code (TAC) §350 and/or the Industrial Solid Waste and Municipal Hazardous Waste rules in 30 TAC §335.

3.1.2 *Performance Standards for Closure in Place*

CPS Energy may close any of the CCR units by leaving CCR in place and constructing a final cover system in accordance with the performance standards stated in 40 CFR §257.102(d)(1):

- (i) *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;*
- (ii) *Preclude the probability of future impoundment of water, sediment, or slurry;*
- (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;*
- (iv) *Minimize the need for further maintenance of the CCR unit; and*
- (v) *Be completed in the shortest amount of time consistent with recognized and generally accepted good engineering practices.*

In addition, closure of the FAL may follow the considerations provided in Technical Guideline No. 3 (Texas TG-3) published by the TCEQ. This document provides the general design approaches for landfill covers. In addition, if a potential release is determined to have occurred from the CCR landfill, then the release will be addressed under the TRRP in accordance with 30 TAC §350.

3.2 **NARRATIVE DESCRIPTION OF THE CLOSURE**

Closure of a CCR unit will be accomplished in steps related to the closure performance standard, the characteristics of the bottom liner, the CCR contained in the CCR unit, and the surrounding area.

This section describes a narrative description of closure of the CCR units by either:

- Closure by removal in accordance with 40 CFR §257.102(c); or
- Closure in place in accordance with 40 CFR §257.102(d).

In addition, requirements for closure of the CCR unit using the TRRP in accordance with 30 TAC §350 and/or the Industrial Solid Waste and Municipal Hazardous Waste rules in 30 TAC §335 may also be implemented for the selected closure.

3.2.1 *Description of Closure by Removal - SRH Pond*

The SRH Pond will be closed by removing and decontaminating each area affected by releases from the CCR units in accordance with 40 CFR §257.102(c) (closure by removal). The closure will be accomplished in steps as follows:

1. Dewater Impoundment: Free liquid in the impoundment will be drained and/or pumped through the permitted outfall until all free liquids have been removed.
2. Remove CCR: CCR and CCR-affected soil will be removed from the CCR unit and from each area affected by release of CCR from that CCR unit. Wet materials will be placed in windrows on an impermeable liner to drain. After free liquids have drained such that the material will pass the paint filter test, recyclable material will be sent off-site for reuse.
3. Demolition and Disposal: Non-recyclable material and the HDPE liner will be excavated and placed in the FAL. The concrete liner, overflow chute, and dividing wall will be demolished and disposed in the FAL.
4. Confirm CCR Removal and Decontamination: CCR removal and decontamination of the CCR unit will be confirmed complete by sampling and analytical testing of representative samples of potentially affected soil and ground water for CCR-related constituents throughout the CCR unit, and each area affected by release from that CCR unit. Completion will be achieved when the analytical results indicate all constituents have removed to the corresponding background concentration or applicable TRRP standards in effect at the time of closure, and ground water monitoring concentrations do not exceed the ground water protection standard established by CPS Energy in accordance with §257.95(h) for each constituent listed in 40 CFR §257, Appendix IV.
5. Site Restoration: CPS Energy may utilize the SRH Pond as impoundments for storm water following removal of CCR. As a result, the impoundments will not be backfilled or graded to prevent ponding of water. New liners, inflow, and outfall structures may be constructed as needed to facilitate reuse of the impoundment. The design criteria for this reuse will be determined by CPS Energy based on regulatory requirements and engineering practices.

6. Completion Report: CPS Energy will prepare, submit to the TCEQ, and obtain TCEQ approval for closure of the CCR unit in accordance with the TRRP and related rules in 30 TAC §350 and/or the Industrial Solid Waste and Municipal Hazardous Waste rules in 30 TAC §335.

3.2.2

Description of Closure by Removal – North and South BAPs

The BAPs will be closed by removing and decontaminating each area affected by releases from the CCR units in accordance with 40 CFR §257.102(c) (closure by removal). The closure will be accomplished in steps as follows:

1. Dewater Impoundment: Free liquid in the impoundment will be drained and/or pumped through the permitted outfall until all free liquids have been removed.
2. Remove CCR: CCR and CCR-affected soil will be removed from the CCR unit and from each area affected by release of CCR from that CCR unit. Wet materials will be placed in windrows on an impermeable liner to drain. After free liquids have drained such that the material will pass the paint filter test, recyclable material will be sent off-site for reuse.
3. Demolition and Disposal: Non-recyclable material will be excavated and placed in the FAL. All inlet and outfall structures will be demolished, with piping and sheet piling cut off at least six inches below ground surface, and capped or filled with concrete. Demolished materials will be placed in the FAL.
4. Confirm CCR Removal and Decontamination: CCR removal and decontamination of the CCR unit will be confirmed complete by sampling and analytical testing of representative samples of potentially affected soil and ground water for CCR related constituents throughout the CCR unit, and each area affected by release from that CCR unit. Completion will be achieved when the analytical results indicate all constituents have removed to the corresponding background concentration or applicable TRRP standards in effect at the time of closure, and ground water monitoring concentrations do not exceed the ground water protection standard established by CPS Energy in accordance with §257.95(h) for each constituent listed in 40 CFR §257, Appendix IV.
5. Site Restoration: CPS Energy may utilize the BAPs as impoundments for storm water following removal of CCR. As a result, the impoundments will not be backfilled or graded to prevent ponding of water. New liners, inflow, and outfall structures may be constructed as needed to facilitate reuse of the impoundments. The design criteria for this reuse will be determined by CPS Energy based on regulatory requirements and engineering practices.
6. Completion Report: CPS Energy will prepare, submit to the TCEQ, and obtain TCEQ approval for closure of the CCR unit in accordance with the TRRP and related rules in 30 TAC §350 and/or the Industrial Solid Waste and Municipal Hazardous Waste rules in 30 TAC §335.

3.2.3

Description of Closure in Place - Evaporation Pond

The EP will be closed by leaving CCR in place (closure in place). The closure will be accomplished in steps as follows:

1. Remove Liquids: Free liquids will be eliminated by removing liquid wastes and/or solidifying the remaining CCR and CCR residues in the CCR unit.
2. Prepare Final Cover System Subgrade: The remaining CCR will be solidified, if necessary, sufficient to support the final cover system, and the surface will be graded and compacted as necessary to support the final cover system. Additional soil fill (i.e., attic fill) will be added if required to achieve subgrade elevations. If excess berm height exists, the extra berm soil may be used (i.e., berms reduced in height) as fill material to achieve the design slopes. Alternatively, interior drainage may be installed with one or more outlets to the unit perimeter.
3. Final Cover System: The final cover system will be constructed in place over the prepared subgrade to achieve the final cover system criteria in 40 CFR §257.102(d)(3) and may follow the guidelines of Texas TG-3.
4. Completion Report: CPS Energy will prepare, submit to the TCEQ, and obtain TCEQ approval for closure of the CCR unit in accordance with the TRRP and related rules in 30 TAC §350 and/or the Industrial Solid Waste and Municipal Hazardous Waste rules in 30 TAC §335.

3.2.4

Description of Closure in Place - Fly Ash Landfill

The FAL will be closed by leaving CCR in place (closure in place). The closure will be accomplished in steps as follows:

1. Remove Liquids: Free liquids will be eliminated by removing liquid wastes and/or solidifying the remaining CCR and CCR residues in the CCR unit.
2. Prepare Final Cover System Subgrade: The remaining CCR will be solidified, if necessary, sufficient to support the final cover system, and the surface will be graded and compacted as necessary to support the final cover system. Additional soil fill (i.e., attic fill) will be added if required to achieve subgrade elevations. If excess berm height exists, the extra berm soil may be used (i.e., berms reduced in height) as fill material to achieve the design slopes. Alternatively, interior drainage may be installed with one or more outlets to the unit perimeter.
3. Final Cover System: The final cover system will be constructed in place over the prepared subgrade to achieve the final cover system criteria in 40 CFR §257.102(d)(3) and may follow the guidelines of Texas TG-3.
4. Completion Report: CPS Energy will prepare, submit to the TCEQ, and obtain TCEQ approval for closure of the CCR unit in accordance with the TRRP and related rules in 30 TAC §350 and/or the Industrial Solid Waste and Municipal Hazardous Waste rules in 30 TAC §335.

3.3 FINAL COVER SYSTEM – EVAPORATION POND AND FLY ASH LANDFILL

The final cover system for the EP and FAL will be as generally described in Section 3.3.1.

3.3.1 Final Cover System Design Criteria

The final cover system constructed for closure of the CCR units will achieve the final cover system design criteria specified in 40 CFR §102(d)(3)(i):

- (A) *The permeability of the final cover system must be 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} cm/sec, whichever is less.*
- (B) *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.*
- (C) *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.*
- (D) *The disruption of the integrity of the final cover system must be minimized through a design that accommodates settling and subsidence.*

3.4 ALTERNATIVE FINAL COVER SYSTEM DESIGN CRITERIA

If CPS Energy chooses to construct an alternative final cover system for closure of a CCR unit, the final cover system will achieve the alternative final cover system design criteria specified in 40 CFR §257.102(d)(3)(ii):

- (A) *The design of the final cover system must include an infiltration layer that achieves an equivalent reduction in infiltration as the infiltration layer specified in [40 CFR §257.102](d)(3)(i)(A) and (B) [i.e. the permeability of the final cover system must be 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} cm/sec, whichever is less; and 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].*
- (B) *The design of the final cover system must include an erosion layer that provides equivalent protection from wind or water erosion as the erosion layer specified in [40 CFR §257.102](d)(3)(i)(C) [i.e. 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].*
- (C) *The disruption of the integrity of the final cover system must be minimized through a design that accommodates settling and subsidence.*

3.4.1

Methods and Procedures Used to Install the Final Cover System

If CPS Energy chooses to implement the final cover system design criteria in 40 CFR §257.102(d)(3)(i) for closure of the FAL, the final cover system is anticipated to be as generally described below:

- Cap Topsoil Layer: The Cap Topsoil layer will be a 6-inch thick layer of topsoil suitable for seeding and establishment of cover vegetation and support of each stage of related cap construction and maintenance equipment and materials, with a surface slope of 3% to 5% graded to drain to relief, and with a substantially continuous stand of erosion-resistant native or adapted perennial shortgrass cover vegetation in accordance with 40 CFR §257.102(d) (3)(i)(C).
- Cap Soil Fill Layer: The Cap Soil Fill layer will be an 18-inch thick layer of soil fill suitable for supporting the Cap Topsoil layer and related cap construction and maintenance equipment and materials in accordance with 40 CFR §257.102(d)(3)(i)(B).

Alternate final cover systems that achieve the alternate final cover system performance requirements in 40 CFR §257.102(d)(3)(ii) may be substituted for the final cover system described above. CPS Energy chooses to implement an alternate final cover system for closure of the EP, the final cover system is anticipated to be as generally described below:

- Cap Topsoil Layer: The Cap Topsoil layer will be a 6-inch thick layer of topsoil suitable for seeding and establishment of cover vegetation and support of each stage of related cap construction and maintenance equipment and materials, with a surface slope of 2% to 15% graded to drain to relief, and with a substantially continuous stand of erosion-resistant native or adapted perennial shortgrass cover vegetation in accordance with 40 CFR §257.102(d) (3)(i)(C).
- Cap Protective Cover Layer: The Cap Protective Cover Layer will be a 12-inch thick layer of general fill soil or bottom ash material to protect underlying geocomposite, compacted clay and Flexible Membrane Liner (FML) layers.
- Geocomposite Drainage Layer: The Geocomposite Drainage Layer will be a geonet heat bonded with a geotextile to convey infiltrated stormwater to the perimeter of the unit.
- Cap Compacted Clay Layer: The Cap Compacted Clay Layer will be a 12-inch thick layer of clay rich soil to limit infiltration and protect underlying FML layer.
- FML Layer: The Flexible Membrane Liner (FML) layer will be a 40-mil LLDPE to minimize infiltration of stormwater.

3.5

CCR VOLUME ESTIMATE

As required in 40 CFR §257.102(b)(1)(iv), the following are estimates of the maximum volume of CCR on-site during the active life of each of the CCR units.

- SRH Pond: 23,600 cubic yards of CCR, based on the maximum capacity of the pond while maintaining the freeboard required by the Inflow Flood Control Plan.
- North BAP: 89,600 cubic yards of CCR, based on the maximum capacity of the pond while maintaining the freeboard required by the Inflow Flood Control Plan.
- South BAP: 99,900 cubic yards of CCR, based on the maximum capacity of the pond while maintaining the freeboard required by the Inflow Flood Control Plan.
- EP: 133,700 cubic yards of CCR, based on the maximum capacity of the pond while maintaining the freeboard required by the Inflow Flood Control Plan.
- FAL: 887,300 cubic yards of CCR, based on the maximum capacity of the landfill while maintaining the freeboard required by the Run-on/Run-off Control Plan.

3.6

FINAL COVER AREA

As required in 40 CFR §257.102(b)(1)(v), an estimate of the largest area requiring a final cover in accordance with 40 CFR §257.102(d) (i.e. closure in place) at any time during the active life of a CCR unit is stated below:

- EP: 4.5 acres, based on the total area inside the interior top of bank.
- FAL: 23 acres, based on the total area inside of the interior top of bank.

3.7

CLOSURE SCHEDULE

As required in 40 CFR §257.102(b)(1)(vi), the estimated schedules for closure of the SRH Pond, BAPs, EP, and FAL are shown in Tables 1 through 4, respectively. In accordance with 40 CFR § 257.102(b)(1)(vi), each of the schedules includes the sequential steps necessary to close the CCR unit, major milestones, and an estimate of the year in which closure activities will be completed.

Due to the anticipated permitting and construction schedule, CPS Energy expects to extend the closure period beyond the six month timeframe for completing closure of the FAL specified in 40 CFR §257.102(f)(1)(i). At the time of closure, CPS Energy will submit extension(s) when and if appropriate.

Owners/operators must commence closure within the following:

- 30 days of final receipt of CCR or non-CCR waste; or
- 30 days of final removal of the known final volume of CCR for beneficial use; and

- Within 2 years of the last receipt of CCR and non-CCR waste streams or the last removal of CCR material for beneficial use.

According to 40 CFR §257.102(e)(3) closure activities have commenced if the CCR unit has ceased receiving waste and owners/operators have:

- (i) *Taken any steps necessary to implement the written closure plan required by paragraph (b) of 40 CFR §257.102;*
- (ii) *Submitted a completed application for any required state or agency permit or permit modification; or*
- (iii) *Taken any steps necessary to comply with any state or other agency standards that are a prerequisite, or are otherwise applicable, to initiating or completing the closure of a CCR unit.*

4.0

CCR UNIT POST-CLOSURE CARE

CPS Energy will implement post-closure care of each CCR unit closed with CCR in place in accordance with 40 CFR §257.104. CPS Energy will also implement if applicable, activities required by the TRRP in accordance with 40 CFR §257 and 30 TAC §350. Goals of the post-closure care are as follows:

- Maintain the integrity and effectiveness of the CCR unit final cover system, including making repairs as necessary to correct the effects of settling, subsidence, erosion, or other events [40 CFR §257.104(b)];
- Maintain the ground water monitoring system and implement each applicable monitoring requirements in 40 CFR §257.90 through 98; and
- Prevent storm water run-on and run-off from eroding or otherwise damaging the final cover [40 CFR §257.104(b)].

CPS Energy will implement the following CCR unit post-closure activities:

- Inspection and maintenance of the CCR unit final cover system and associated groundwater monitoring wells;
- Ground water monitoring sampling, analysis, and reporting;
- Facility Operating Record recordkeeping and reporting posted on the internet site available to the public; and
- Deed recordation.

According to 40 CFR §257.104(d)(3)(i), CPS Energy may amend this written post-closure plan at any time.

Per 40 CFR §257.102(d)(3)(ii), CPS Energy must amend the post-closure plan whenever:

- There is a change in operation of the CCR unit that would substantially affect the written post-closure plan in effect; or
- After post-closure activities have commenced, unanticipated events necessitate a revision of the written post-closure plan.

4.1

POST-CLOSURE PERIOD

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

4.2

POST CLOSURE INSPECTION AND MAINTENANCE

CPS Energy will inspect and maintain the final cover system at each CCR unit, each associated ground water monitoring well, and each associated permanent benchmark throughout the post-closure period. The CCR unit post-closure care inspection and maintenance requirements are described below:

- 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 run-off control systems will be inspected for damage resulting from natural causes and non-routine facility operations. Storm water run-on and run-off control berms and drainage channels that drain the CCR unit will be maintained and, as necessary to maintain effectiveness, repaired.
- Ground water monitoring wells that are part of the CCR unit monitor well network will be inspected for condition necessary to provide adequate and representative ground water 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.

CPS Energy will implement ground water monitoring during the CCR unit post-closure care period in accordance with 40 CFR §257.90 through §257.98.

4.3

CONTACT INFORMATION

The name, address, telephone number, and email address of the person to contact about the CCR units at the Calaveras Power Station during the post-closure care period is:

Michael Malone
CPS Energy
500 McCullough Ave.
San Antonio, Texas 78215
210-353-3625
mmlalone@cpsenergy.com

4.4

PLANNED CCR UNIT POST-CLOSURE PROPERTY USE

CPS Energy plans to use the closed SRH Pond, and BAP areas as storm water retention/storage ponds, restoration of native plant life, or redevelopment. The area will be limited to commercial or industrial use if closed under certain TRRP standards.

During the post-closure care period, CPS Energy plans to limit access to the CCR unit to reduce potential for damage of the final cover system and the associated ground water monitoring wells.

If the post-closure period of a CCR unit extends past the date the Calaveras Power Station is decommissioned, the CCR unit will remain closed to the public or limited to compatible commercial or industrial use.

CCR UNIT CLOSURE AND POST-CLOSURE PLAN AMENDMENT

CPS Energy may amend this CPC Plan at any time.

As specified in 40 CFR §257.102(b)(3)(ii), CPS Energy must amend this CPC Plan for any of the following reasons:

- When there is a change in operation of the CCR unit that would substantially affect the written CPC Plan then in effect; or
- When an unanticipated event necessitates revision of the CPC Plan before or during CCR unit closure activities, or after the CCR unit post-closure care period has commenced.

In addition, as specified in 40 CFR §257.102(b)(3)(iii), CPS Energy must amend this CPC Plan within 60 days prior to a CPS Energy planned change in CCR unit operation or within 60 days after an unplanned CCR unit event (if the change occurs after CCR unit closure activities have been initiated, the CPC Plan must be amended within 30 days following the triggering event).

CPS Energy will provide written certification by a professional engineer that states that the amended CPC Plan meets the requirements of closure and post-closure care required in 40 CFR §257.102(b)(4).

6.0 *NOTIFICATION AND RECORD KEEPING*

CPS Energy will issue notifications and implement recordkeeping in accordance with 40 CFR §257.105 and 40 CFR §257.106.

6.1 *NOTIFICATIONS*

CPS Energy will notify the Executive Director of TCEQ, the State Director as defined in 40 CFR §257.105(d), and in accordance with 40 CFR §257.106(g)(1) and (2), when the following documents are made available in the CPS Energy Facility Operating Record:

- Initial CPC Plan;
- Each amendment to the CPC Plan;
- Written demonstration for a time extension for initiating closure;
- Each notice of intent to initiate CCR unit closure;
- Each notice of completion of CCR unit closure;
- Intent to comply with alternative closure requirements;
- Annual progress reports under alternative closure requirements;
- Each notification of completion of the CCR unit post-closure care period;
and
- Each CCR unit deed notation.

In accordance with TCEQ instructions related to CCR units in Texas, CPS Energy will send each notification to the TCEQ via internet electronic mail to:

CCRNotify@tceq.texas.gov

6.2 *CPS ENERGY CCR WEB SITE*

CPS Energy will post the following documents on the CPS Energy internet site accessible to the public in accordance with 40 CFR §257.107(g)(1) and (2) within 30 days of placing the document in the Operating Record and for a period of five years thereafter:

- Initial CPC Plan;
- Each amendment to the CPC Plan;
- Written demonstration for a time extension for initiating closure;
- Each notice of intent to initiate CCR unit closure;
- Each notice of completion of CCR unit closure;
- Intent to comply with alternative closure requirements;
- Annual progress reports under alternative closure requirements;
- Each notification of completion of the CCR unit post-closure care period;
and

- Each CCR unit deed notation.

6.3

DEED NOTATION

For CCR units closed under TRRP for commercial or industrial land use, in accordance with requirements specified in 30 TAC §350.111, Institutional Controls, and in 40 CFR §257.102(i), Deed Notations, CPS Energy will record in the permanent deed records of Bexar County, Texas the following information regarding each CCR unit closure:

Remedy Standard A, closure by removal to residential standards:

- No deed notice/institutional controls required.

Remedy Standard A, closure by removal to commercial/industrial standards:

- A deed notice that if any person desires to use the property for residential purposes, they must first notify the TCEQ at least 60 days in advance. Additional response action may be necessary before the property is to be approved for residential use.

Remedy Standard B, closure with CCR left in place:

- A metes and bounds description and a plat map sealed by Registered Professional Land Surveyor licensed by the Texas Board of Professional Land Surveyors of the portion(s) of the tract(s) of land on which a CCR unit has been closed in place;
- A statement describing the appropriate future land use and documenting any property use limitations;
- The class(es) of waste that was disposed and the corresponding waste description(s); and
- The name or permanent address of the person or persons operating the facility where more specific information on the wastes can be obtained.

Within 30 days of recording each deed notation, CPS Energy will place a corresponding notification that the notation has been recorded in the CPS Energy Facility Operating Record and the CPS Energy CCR Web Site.

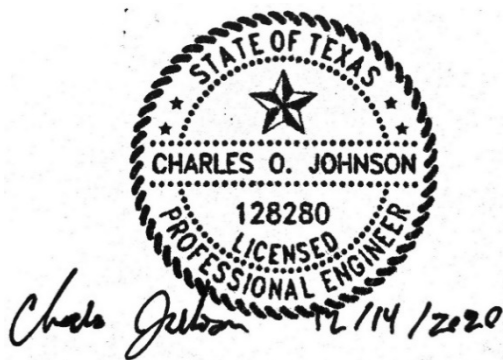
7.0

PROFESSIONAL ENGINEER CERTIFICATION

40 CFR §257.102 and 40 CFR §257.104 require that this CPC Plan meet those requirements. In addition, a professional engineer must certify that any amendments to the CPC Plan meet requirements of those rules, and that closure of the CCR unit has been achieved in accordance with those rules. Certification for this CPC Plan is provided below.

"I hereby certify that I have reviewed the CCR unit management practices for the Calaveras Power Station in Bexar County, Texas, and being familiar with the provisions of 40 CFR Part 257.102 and 40 CFR Part 257.104, attest that this CPC Plan has been prepared in accordance with good engineering practices."

Seal:



Charles O. Johnson
Printed Name of Licensed Professional Engineer

Charles Johnson
Signature of Licensed Professional Engineer

Date: 12/14/2020

128280
TBPE P.E. License No.

8.0

REFERENCES

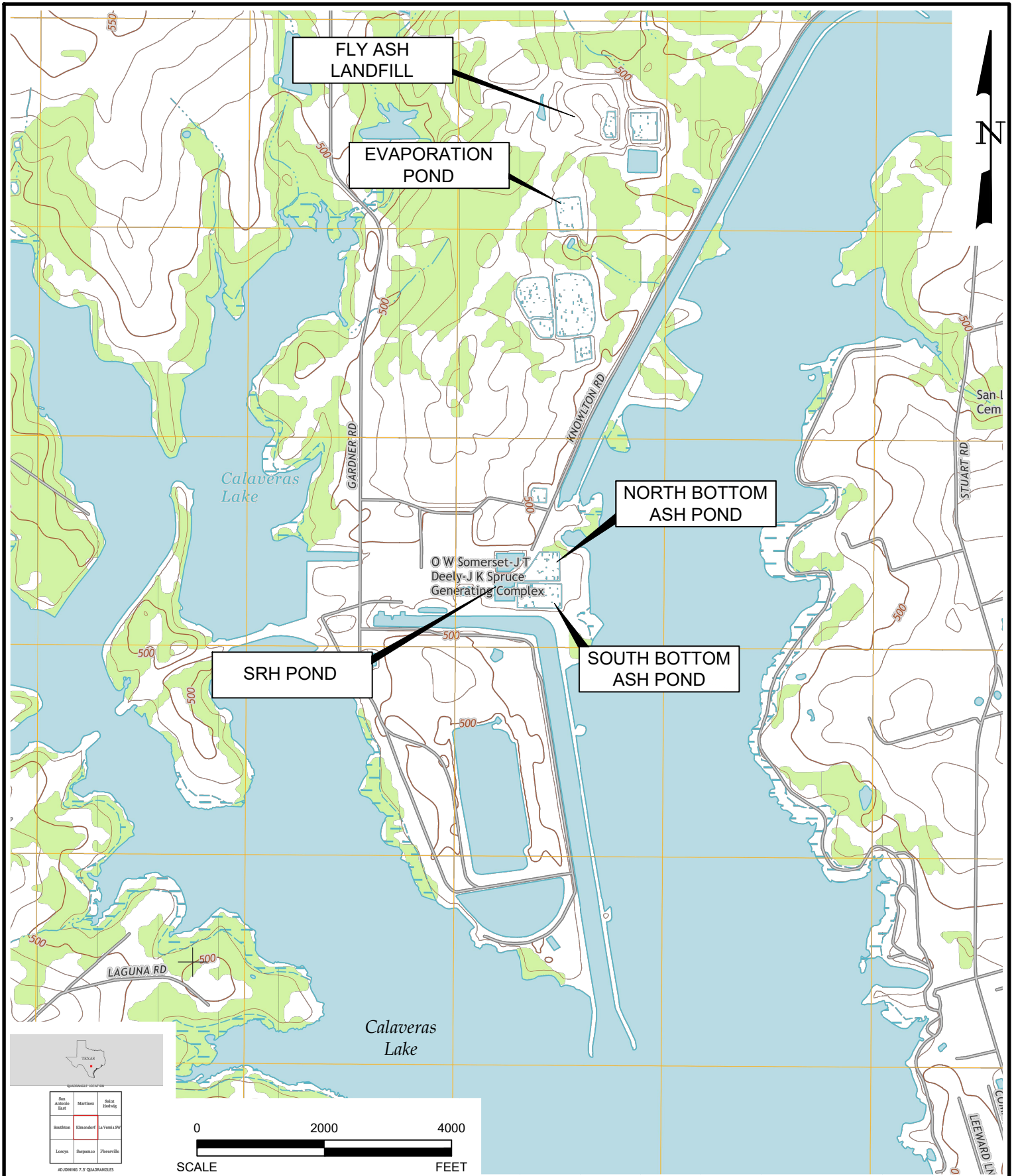
Sources of information used in the preparation of this CPC Plan are listed below:

- | | |
|------------|--|
| CDM, 2014a | Assessment of Dam Safety of Coal Combustion Surface Impoundments Final Report, CPS Energy J.T. Deely Power Plant, San Antonio, Texas, CDM Smith, February 2014, revised May 2014 and June 2014. |
| CDM, 2014b | Assessment of Dam Safety of Coal Combustion Surface Impoundments Final Report, CPS Energy J.K. Spruce Power Plant, San Antonio, Texas, CDM Smith, February 2014, revised May 2014 and June 2014. |
| B&V, 1974 | Railroad Turnout Coal Handling Service Area and Ash Disposal Area Drawing, San Antonio, Texas, Black & Veach Consulting Engineering, September 30, 1974. |
| CPS, 1990 | Ash Disposal Pit #4 Elevation Views Drawing, San Antonio, Texas, City Public Service, July 16, 1990. |

Figure

December 2020
Project No. 0503422

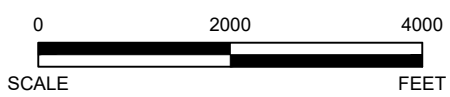
Environmental Resources Management
840 West Sam Houston Parkway North, Suite 600
Houston, Texas 77024
281-600-1000



QUADRANGLE COORDINATES

San Antonio East	Martinez	San Antonio West
Southtown	Wimberly	La Villa SW
Lopez	San Marcos	Flowerville

NO DRAWING TO QUADRANGLES



Environmental Resources Management

FIGURE 1
CCR UNIT LOCATION MAP

CPS Energy - Calaveras Power Station
San Antonio, Texas



DESIGN: CC DRAWN: RLM CHKD.: CC

DATE: 9/19/2018 SCALE: AS SHOWN REV.:

W.O. NO.: T:\DWG\AutoCAD\dwg\0337367\0337367_CCRUnitLocs_topo.dwg

Tables

December 2020
Project No. 0503422

Environmental Resources Management
840 West Sam Houston Parkway North, Suite 600
Houston, Texas 77024
281-600-1000

TABLE 1
Estimated Closure Schedule

SRH Pond
CCR Unit Closure and Post-Closure Plan
Calaveras Power Station
Bexar County, Texas

Event/Activity	Estimated Schedule ⁽¹⁾
Notification of intent to initiate closure of CCR Unit, per 40 CFR 257.106	When decision is finalized to initiate closure
Detailed design	12 months
Permitting ⁽²⁾	6 months
Contractor bid, selection, and award	8 months
CCR removal ⁽³⁾	2 months
Demolition, decontamination ⁽⁴⁾ , finish grading, and site restoration	5 months
Prepare and submit closure certification report	3 months
Estimated Completion of Closure	36 months from notification date

NOTES:

1) Closure schedule is provided in months from notification of intent to initiate closure.

2) Closure activities have commenced when owners/operators have submitted applications for state or local permits per 40 CFR 257.102(e)(3).

3) Includes dewatering of pond, excavation and dewatering of CCR, and placement of dewatered CCR into Fly Ash Landfill.

4) Includes removal of associated infrastructure, excavation and disposal of concrete slab and one foot of subgrade liner, and confirmation soil sampling.

TABLE 2
Estimated Closure Schedule

North and South BAPs
CCR Unit Closure and Post-Closure Plan
Calaveras Power Station
Bexar County, Texas

Event/Activity	Estimated Schedule⁽¹⁾
Notification of intent to initiate closure of CCR Unit, per 40 CFR 257.106	June 21, 2020
Detailed design	12 months
Permitting ⁽²⁾	6 months
Contractor bid, selection, and award	8 months
CCR removal ⁽³⁾	2 months
Demolition, decontamination ⁽⁴⁾ , finish grading, and site restoration	5 months
Prepare and submit closure certification report	3 months
Estimated Completion of Closure	June 2023

NOTES:

- 1) Closure schedule is provided in months from notification of intent to initiate closure.
- 2) Closure activities have commenced when owners/operators have submitted applications for state or local permits per 40 CFR 257.102(e)(3).
- 3) Includes excavation and dewatering of CCR, and placement of dewatered CCR into Fly Ash Landfill.
- 4) Includes removal of associated infrastructure, excavation and disposal of one foot of subgrade liner, and confirmation soil sampling.

TABLE 3
Estimated Closure Schedule

**Evaporation Pond
CCR Unit Closure and Post-Closure Plan
Calaveras Power Station
Bexar County, Texas**

Event/Activity	Estimated Schedule⁽¹⁾
Notification of intent to initiate closure of CCR Unit, per 40 CFR 257.106	When decision is finalized to initiate closure
Detailed design	12 months
Permitting ⁽²⁾	6 months
Contractor bid, selection, and award	8 months
Prepare subgrade ⁽³⁾	2 months
Construct landfill cap ⁽⁴⁾	3 months
Prepare and submit closure certification report	3 months
Estimated Completion of Closure	34 months from notification date

NOTES:

- 1) Closure schedule is provided in months from notification of intent to initiate closure.
- 2) Closure activities have commenced when owners/operators have submitted applications for state or local permits per 40 CFR 257.102(e)(3).
- 3) Includes regrading waste, placing borrow fill as required to achieve design grades, and shaping perimeter drainage features.
- 4) Includes cap components, seeding, and final drainage component installation. Does not include time required for self-sustaining vegetative cover to be established.

TABLE 4
Estimated Closure Schedule

Fly Ash Landfill
CCR Unit Closure and Post-Closure Plan
Calaveras Power Station
Bexar County, Texas

Event/Activity	Estimated Schedule ⁽¹⁾
Notification of intent to initiate closure of CCR Unit, per 40 CFR 257.106	When decision is finalized to initiate closure
Detailed design	12 months
Permitting ⁽²⁾	6 months
Contractor bid, selection, and award	10 months
Prepare subgrade ⁽³⁾	3 months
Construct landfill cap ⁽⁴⁾	4 months
Prepare and submit closure certification report	3 months
Estimated Completion of Closure	38 months from notification date

NOTES:

1) Closure schedule is provided in months from notification of intent to initiate closure.

2) Closure activities have commenced when owners/operators have submitted applications for state or local permits per 40 CFR 257.102(e)(3).

3) Includes regrading waste, placing borrow fill as required to achieve design grades, and shaping perimeter drainage features.

4) Includes cap components, seeding, and final drainage component installation. Does not include time required for self-sustaining vegetative cover to be established.