Prepared For:

CPS Energy

Emergency Action Plan

Bottom Ash Ponds and SRH Pond
Calaveras Power Station
San Antonio, Texas

Revised May 2017

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1.0 INTRODUCTION

This Emergency Action Plan (EAP) has been prepared in accordance with the regulatory requirements of the federal rule for the Disposal of Coal Combustion Residuals (CCR) from Electric Utilities, in particular the requirements of 40 CFR §257.73(a)(3), and has been certified by a Professional Engineer (Appendix A). This EAP establishes the notification procedures for implementing emergency actions to be taken prior to and/or following a failure (if one were to occur) of the Bottom Ash Ponds (BAPs) and/or the Sludge Recycle Holding (SRH) Pond at the Calaveras Power Station located in San Antonio, Texas.

The EAP will address the following elements in accordance with 40 CFR §257.73(a)(3)(i):

1. Define the events or circumstances involving the CCR unit that represent a safety emergency, along with a description of the procedures that will be followed to detect a safety emergency in a timely manner;

2. Define responsible persons, their respective responsibilities, and notification procedures in the event of a safety emergency involving the CCR unit;

3. Provide contact information of emergency responders;

4. Include a map that delineates the downstream area that would be affected in the event of a CCR unit failure and a physical description of the CCR unit; and

5. Include provisions for an annual face-to-face meeting or exercise between representatives of the owner or operator of the CCR unit and the local emergency responders.

This EAP will be evaluated, at a minimum, every 5 years to verify that the information is accurate and updated. As necessary, this EAP must be updated and a revised EAP placed in the facility's operating record as required by 40 CFR §257.105(f)(6). In addition, this document must be uploaded to the established CCR website for this facility per the requirements in 40 CFR §257.107.

2.0 PROJECT DESCRIPTION

The Calaveras Power Station is located in Bexar County, Texas, southeast of San Antonio. The Power Station is located immediately adjacent to Calaveras Lake, but there are no towns in proximity to the Power Station as shown in Figure 1. This EAP covers potential emergencies at the following CCR units at the Power Station, specifically:

- North BAP - classified as significant hazard impoundment
- South BAP - classified as significant hazard impoundment
- SRH Pond - classified as significant hazard impoundment

2.1 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. These BAPs are located east of the plants, adjacent to the SRH Pond.

The BAPs began receiving CCR before October 14, 2015 and currently receive CCR. Hence, in accordance with 40 CFR §257.53, the BAPs are classified as active existing CCR 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 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 worst-case assumption of the BAPs being completely full of CCR up to the limits of the freeboard as allowed by the Inflow Flood Control Plan.

2.2 SRH POND

The SRH Pond contains CCR sludge from the air pollution control equipment from the plants. The SRH Pond includes a divider wall that can separate the pond into a north and south section. Each section is approximately 1.5 acres in area and is located east of the plants, adjacent to the BAPs.

The SRH Pond began receiving CCR before October 14, 2015 and is still in service. Hence, in accordance with 40 CFR §257.53, the SRH Pond is classified as an active existing CCR surface impoundment.

The interior slopes of the two sections of the SRH Pond are reportedly constructed with a 30-mil HDPE liner and a six-inch thick concrete slab. The SRH Pond is separated by a concrete divider wall with a sluice gate that allows the north and south sections to be isolated from each other. Water is pumped from the SRH Pond to clarifiers via two 18-inch steel pipes. Both sections 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 section of the SRH pond. This estimate is based on a worst-case assumption of the SRH Pond being completely full of CCR up to the limits of the freeboard as allowed by the Inflow Flood Control Plan.

3.0 EMERGENCY PROCEDURES

3.1 MONITORING

Monitoring is a proactive way to identify maintenance issues and serves as an early warning system for detection and prevention of Emergency Levels and Emergency Scenarios which are summarized in Sections 3.4 and 3.5.

Weekly visits to the BAPs and SRH Pond are made by qualified plant personnel. Inspection forms are filled out for each weekly inspection at each unit, and any required corrective actions are noted and scheduled. Corrective actions are inspected on subsequent weekly visits.

An annual visual engineering inspection of the BAPs and SRH Pond are conducted by a Professional Engineer. During this inspection, the Professional Engineer assesses structural stability indicators, indications of potential seepage through the embankment, vegetative conditions, and other items as necessary. If needed, the Professional Engineer also notes corrective actions to be taken.

3.2 DETECTION

Potential emergency levels, which are listed in Section 3.4, may be observed and reported by plant personnel during regular maintenance and/or inspections. Once notified, it is the Operations Shift Supervisor's responsibility to lead the response actions. If the Operations Shift Supervisor is not available to lead the response, then the next highest ranking on-site supervisor shall have that responsibility. Roles and responsibilities are further defined in Section 4.0 and notification procedures are outlined in the Notification Flowcharts provided in Appendix B.

3.3 EVALUATION

The Operations Shift Supervisor should be the first person notified of a potential problem at the BAPs or SRH Pond, and would be the first person on the scene. Upon arrival at the site, the Operations Shift Supervisor will assume responsibility for the condition, evaluate the potential emergency, determine the initial emergency level classification (Level 1, 2, or 3, as described in Section 3.4), and continue to evaluate the condition.

3.4 EMERGENCY LEVEL CLASSIFICATION

If any of the conditions described below in Sections 3.4.1, 3.4.2, or 3.4.3 are developing, appear imminent, or have occurred at either the BAPs or SRH Pond,

plant personnel shall implement the notification procedures immediately. Notification Flowcharts for the various levels are provided in Appendix B.

3.4.1 Level 1: Non-failure Emergency

Level 1 covers a non-failure scenario with no immediate threat to the integrity of the unit, such as the following:

- Water impounding behind either impoundment such that the water level from a precipitation event causes a rise in the level of 2 feet or more within 48 hours;
- Obstructions are present in any of the spillway structures;
- Sinkholes develop downstream with no water present;
- Structural damage to discharge structures;
- Visible and limited surficial slump of soils on face of embankment; depth of two feet or less; and/or
- Significant erosion on downstream face of the impoundment embankments.

3.4.2 Level 2: Potential Failure

Level 2 covers the scenario where a failure may occur, but corrective measures may prevent or mitigate failure, such as the following:

- Water is impounding behind either impoundment such that the water level is within 1 foot of the top of the crest of the impoundment;
- Seepage occurs through the embankment and/or foundation at observed flow rates that appear unusually high or not typical of base flow conditions;
- Unusual crack development in the embankment and/or foundation with minor seepage (wet spots on the surfaces) or controllable flow is observed;
- Water is observed in a sinkhole downstream but there is no visible turbidity in the water; and/or
- A previously unidentified seep or similar discharge is observed at the toe of the embankment with no significant turbidity.

3.4.3 Level 3: Imminent Failure (Emergency)

Level 3 covers the scenario where no time is available to attempt corrective measures and evacuation should be implemented immediately. Level 3 includes the following:

- Water level is at the top of the crest of the impoundment;
- Uncontrolled water flows through cracks in the intake tower, the embankment and/or the foundation, steadily increasing in size and volume;
- Water is observed in a sinkhole downstream where turbidity is noted in the water;
- A significant single or multiple slide/slumps are observed and are continuing to enlarge;
- Whirlpool is observed in the impounded water;
- A large slump or slide develops in the embankment, which threatens to release the impounded water;
- Embankment sections are displaced or separated; and/or
- A turbid or muddy discharge is observed at the toe of the embankment.

3.5 EMERGENCY SCENARIOS

Below are specific emergency scenarios for the BAPs and SRH Pond. Potential failure pathways described below for the BAPs and the SRH Pond are shown on Figures 2 and 3.

3.5.1 Bottom Ash Ponds

The BAPs are contained within elevated earthen and concrete berms. The ponds are entirely within the facility boundary, with no public access or property nearby. The maximum volume of water and CCR estimated to be on-site in any one pond is 118 acre-feet, or 5,140,000 cubic feet. The maximum height of the berms above the surrounding ground is approximately six feet.

A catastrophic failure mode creating the highest potential for damage would be shallow failure of one of the surrounding berms. While extremely unlikely given the calculated factor of safety, this would allow a sudden release of the contents in the direction of the berm failure. Even in the event of such a release, the

limited volume of water in the pond would not be capable of creating an instantaneous release of all water in the pond, but would likely result in a rapid slumping of the failed section of berm. This is anticipated to be slow enough to allow workers on or near the berm to escape to safety without being inundated.

A failure in any direction would result in water/CCR being discharged to a surrounding body of water:

- Release to the west - would be captured in the SRH Pond and a stormwater retention pond. Discharges to the SRH Pond would be equalized within the SRH Pond and the BAPs. Discharges to the retention pond would drain to Calaveras Lake.

- Release to the east - would be captured in Calaveras Lake. Discharges to the lake would be dissipated into the much larger volume of water present in the lake, with no noticeable impact on water elevations.

- Release to the south - would be captured in the adjacent BAP (if failure of the North BAP) or would be captured in the cooling water canal, part of Calaveras Lake (if failure of the South BAP). Discharges to the canal would be dissipated into the much larger volume of water present in the lake, with no noticeable impact on water elevations.

- Release to the north - would be captured in the adjacent BAP (if failure of the South BAP) or would be captured in Calaveras Lake (if failure of the North BAP). Discharges to the lake would be dissipated into the much larger volume of water present in the lake, with no noticeable impact on water elevations.

3.5.2 SRH Pond

The SRH Pond is contained within elevated earthen and concrete berms. The pond is entirely within the facility boundary, with no public access or property nearby. The maximum volume of water and CCR estimated to be on-site in any one pond is seven acre-feet, or 305,000 cubic feet. The maximum height of the berms above the surrounding ground is approximately six feet.

A catastrophic failure mode creating the highest potential for damage would be shallow failure of one of the surrounding berms. While extremely unlikely given the calculated factor of safety, this would allow a sudden release of the contents in the direction of the berm failure. Even in the event of such a release, the limited volume of water in the pond would not be capable of creating an instantaneous release of all water in the pond, but would likely result in a rapid

slumping of the failed section of berm. This is anticipated to be slow enough to allow workers on or near the berm to escape to safety without being inundated.

A failure in any direction would result in water/CCR being discharged to a surrounding body of water:

- Release to the west - presents the highest risk to property damage. All property to the west is privately owned by CPS Energy. The area of the plant to the west is much larger than the area of the SRH Pond and may lead to minor flooding of the plant in the immediate vicinity of the pond. Flooding is expected to be deeper in low-lying areas, but would drain south to Calaveras Lake. Discharges to the lake would be dissipated into the much larger volume of water present in the lake, with no noticeable impact on water elevations.

- Release to the east - would be captured in the BAPs. Discharges to the BAPs would be equalized within the SRH Pond and the BAPs. The BAPs have the capacity to contain the volume of the SRH Pond.

- Release to the south - would be captured in the cooling water canal, part of Calaveras Lake. Discharges to the canal would be dissipated into the much larger volume of water present in the lake, with no noticeable impact on water elevations.

- Release to the north – would be captured in a stormwater retention pond, but overfilling may be possible dependent upon the amount of freeboard in the retention pond at the time. Overtopping of the retention pond may lead to minor flooding of the facility in the immediate vicinity of the pond. Flooding is expected to be limited to low-lying areas, but would drain south to Calaveras Lake. Discharges to the lake would be dissipated into the much larger volume of water present in the lake, with no noticeable impact on water elevations.

4.0 GENERAL RESPONSIBILITIES

4.1 OPERATIONS SHIFT SUPERVISOR

Plant personnel will report unusual observations of the embankments, whether from intentional monitoring or casual observations to the Operations Shift Supervisor. The Operations Shift Supervisor shall coordinate emergency response action in the event of an emergency. The Operations Shift Supervisor shall take responsibility to make appropriate notifications, and to request assistance as specified in the Notification Flowcharts in Appendix B. The Operations Shift Supervisor may delegate responsibility as appropriate. If the Operations Shift Supervisor is not available or able to lead the response, then the next highest ranking on-site supervisor shall have that responsibility.

The Operations Shift Supervisor shall:

1. Assume responsibility for the condition, determine the initial Emergency Level classification (Level 1, 2, or 3), and continue to evaluate the condition;

2. Provide for surveillance of the BAPs and SRH Ponds;

3. Initiate and maintain contact with local emergency responders according to the Notification Flowcharts provided in Appendix B, as appropriate;

4. Document and maintain logs recording all activations of the EAP;

5. Initiate and direct corrective actions in consultation with an engineering/ geotechnical firm and/or Professional Engineers;

6. Supervise and coordinate plant personnel and contractors during the response activities; and

7. Terminate, when appropriate, emergency status at the BAPs or SRH Ponds.

4.2 EAP COORDINATOR

The EAP Coordinator shall:

1. Maintain the most recent version of the EAP on the publicly accessible internet CCR website and retain it for at least 5 years;

2. Maintain the EAP in the facility's operating record;

3. Review and update the EAP as necessary, and at a minimum of every five (5) years;

4. Make appropriate notifications as required;

5. Conduct an annual face-to-face meeting between plant personnel and local emergency responders;

6. Document and maintain logs recording all activations of the EAP;

7. Coordinate a follow-up evaluation of emergency response activities following any emergency at any impoundment; and

8. Serve as the EAP contact person.

5.0 UPDATING THE EAP

The EAP shall be reviewed and updated by the CPS Energy and all affected parties when significant changes to the facility occur, emergency contacts/reporting procedures change or a minimum of once every five (5) years. When updating the EAP, check all contact names and phone numbers for verification. If there are significant changes to the EAP, such as major modifications to the embankments, the EAP should be updated as soon as possible.

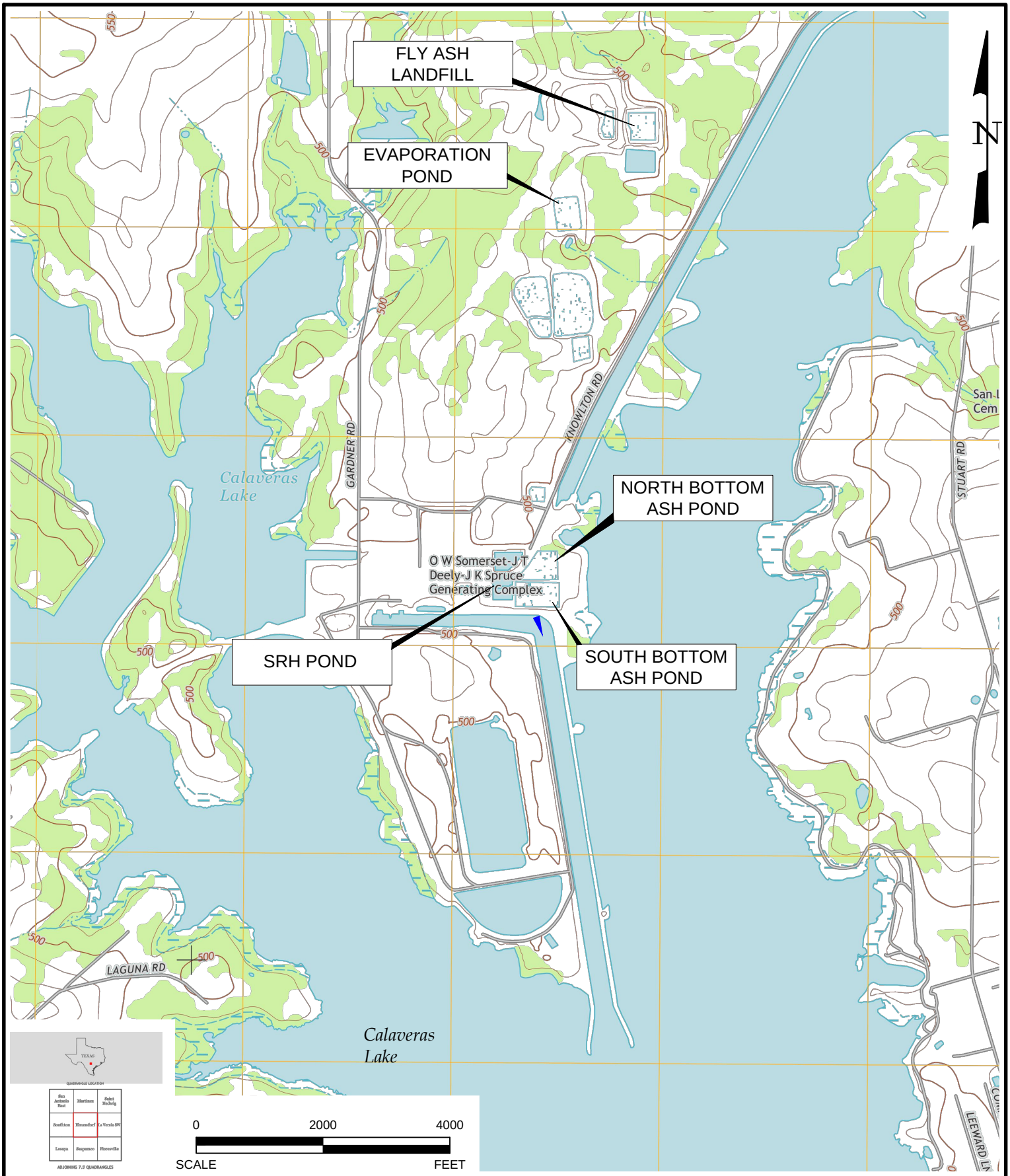
6.0 ANNUAL FACE-TO-FACE MEETING

An annual face-to-face meeting will be held with local emergency responders per 40 CFR §257.73 (a)(3)(i)(E). The meeting will cover:

- General information about the CCR impoundments;
- Roles and responsibilities the emergency responders would have in assisting the facility in an emergency; and
- Potential risks these CCR impoundments pose as well as preventative measures plant personnel are taking to avoid these potential issues.

The meeting will be held regardless of whether one of the emergency levels has occurred. If an incident defined by one of these emergency levels occurs, then the annual meeting date may be moved to discuss the incident soon after it occurs. Documentation of the annual face-to-face meeting shall be maintained in the facility's operating record.

Figures



Environmental Resources Management

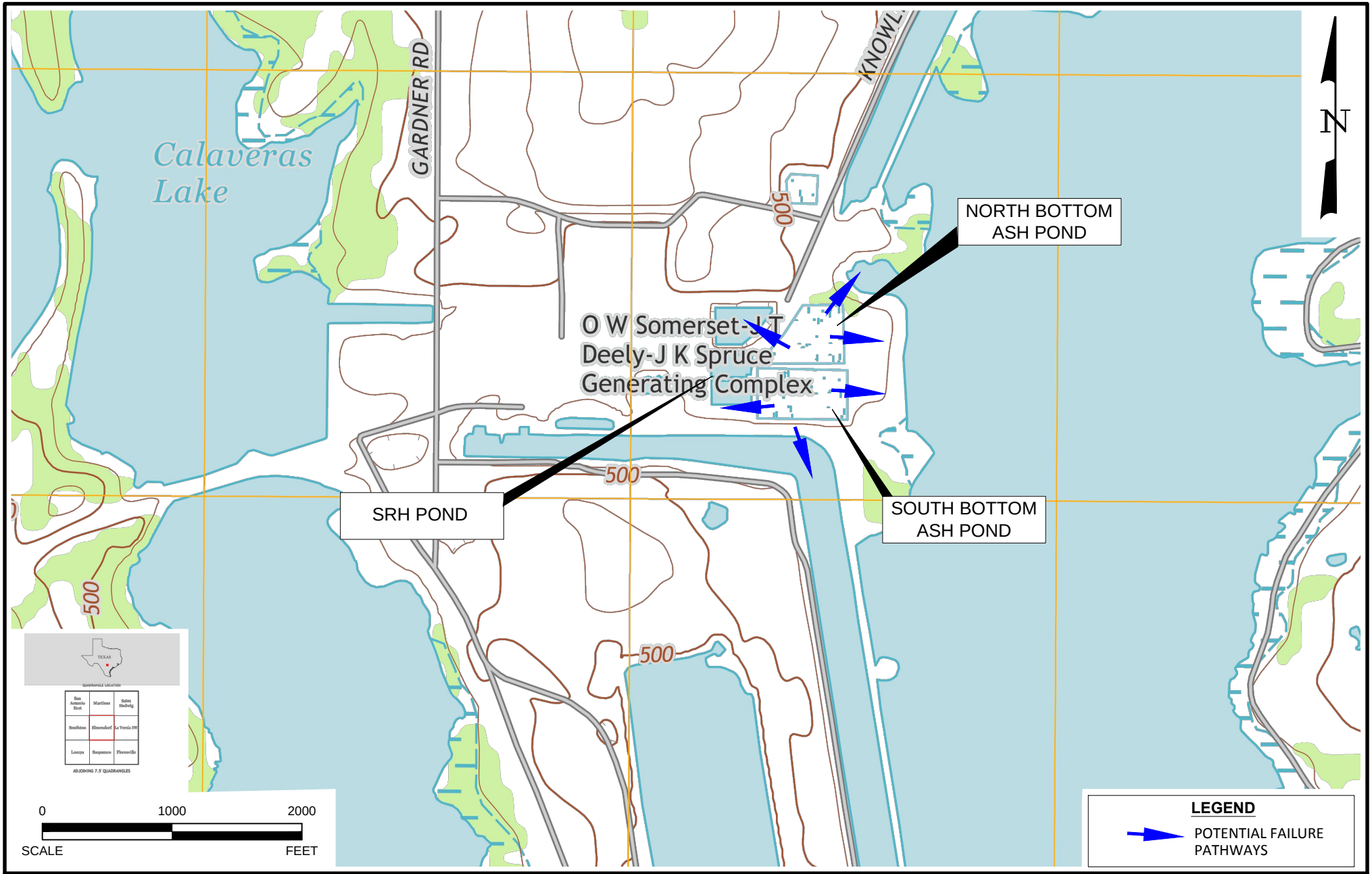
DESIGN: CC	DRAWN: RLM	CHKD.: CC
DATE: 4/20/2017	SCALE: AS SHOWN	REV.:
W.O. NO.:		

FIGURE 1
CCR UNIT LOCATIONS
Calaveras Power Station
CPS Energy
San Antonio, Texas

ERM

ERM-Southwest, Inc. TX PE Firm No. 2393

P:\Projects\0352436 CPS Energy Calaveras CCR Engineering.WZ\CAD\0352436A03 FIG1.dwg, 4/20/2017 11:30:16 AM



Environmental Resources Management

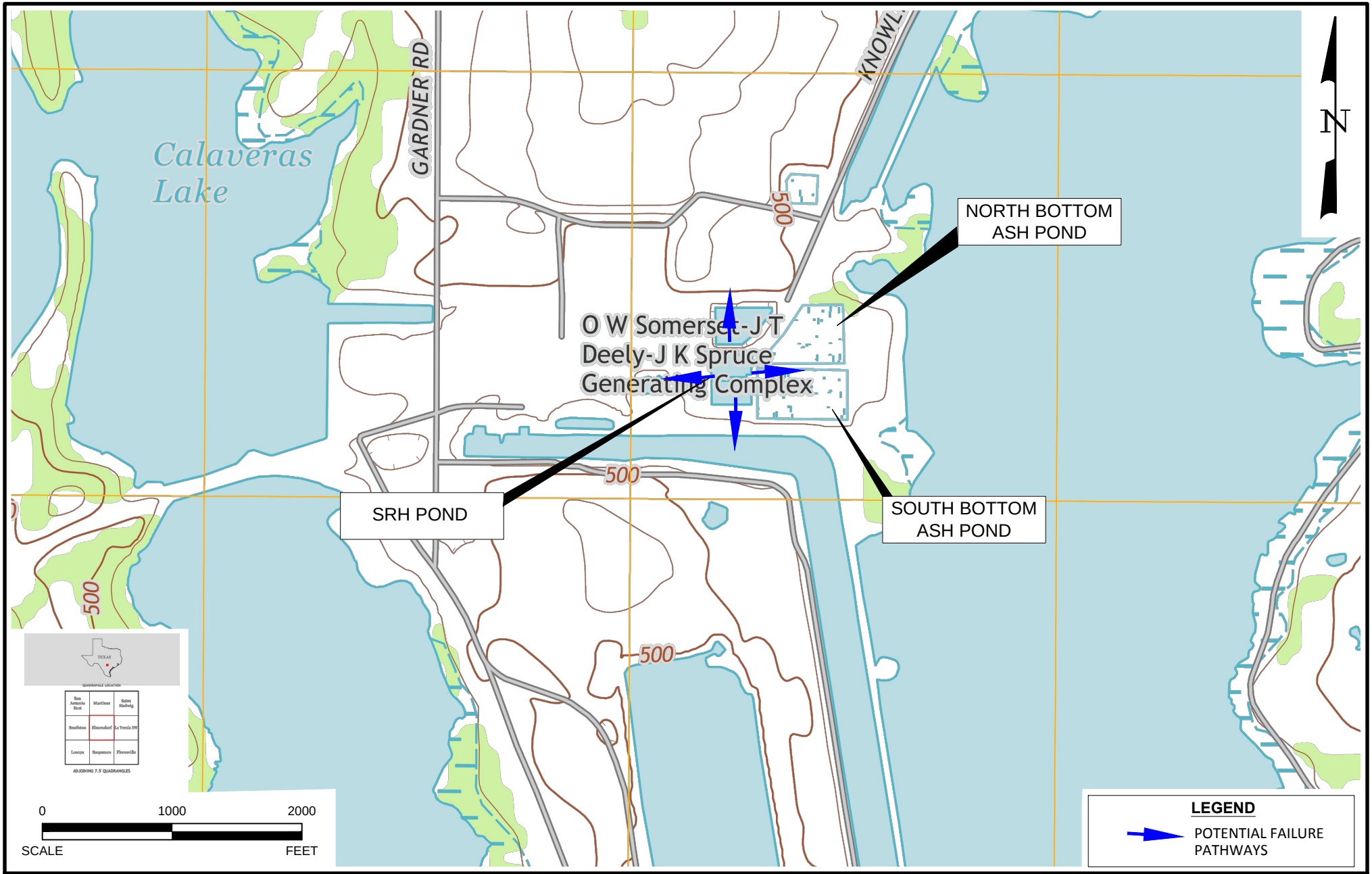
DESIGN: C.C	DRAWN: RLM	CHKD.: C.C
DATE: 4/20/2017	SCALE: AS SHOWN	REV.:
W.O. NO.:		

FIGURE 2
POTENTIAL FAILURE PATHWAYS - BOTTOM ASH PONDS
Calaveras Power Station
CPS Energy
San Antonio, Texas

ERM

ERM-Southwest, Inc. TX PE Firm No. 2393

P:\Projects\0352436 CPS Energy Calaveras CCR Engineering.WZ\CAD\0352436A01 FIG2.dwg, 4/20/2017 11:31:20 AM



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DESIGN: C.C	DRAWN: RLM	CHKD.: C.C
DATE: 4/20/2017	SCALE: AS SHOWN	REV.:
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FIGURE 3
POTENTIAL FAILURE PATHWAYS - SRH POND
Calaveras Power Station
CPS Energy
San Antonio, Texas

ERM

ERM-Southwest, Inc. TX PE Firm No. 2393

P:\Projects\0352436 CPS Energy Calaveras CCR Engineering.WZ\CAD\0352436A01 FIG3.dwg, 4/20/2017 11:27:46 AM

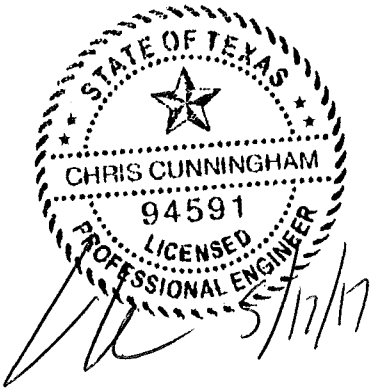
Appendix A
Professional Engineer Certification

PROFESSIONAL ENGINEER CERTIFICATION

I hereby certify that I, or an agent under my review, has prepared this Emergency Action Plan (EAP), and am familiar with the provisions of the final rule to regulate the disposal of coal combustion residuals (CCR). I attest that this EAP has been prepared in accordance with good engineering practices and meets the intent of 40 CFR §257.73. To the best of my knowledge, the information contained in this EAP is true, complete, and accurate.

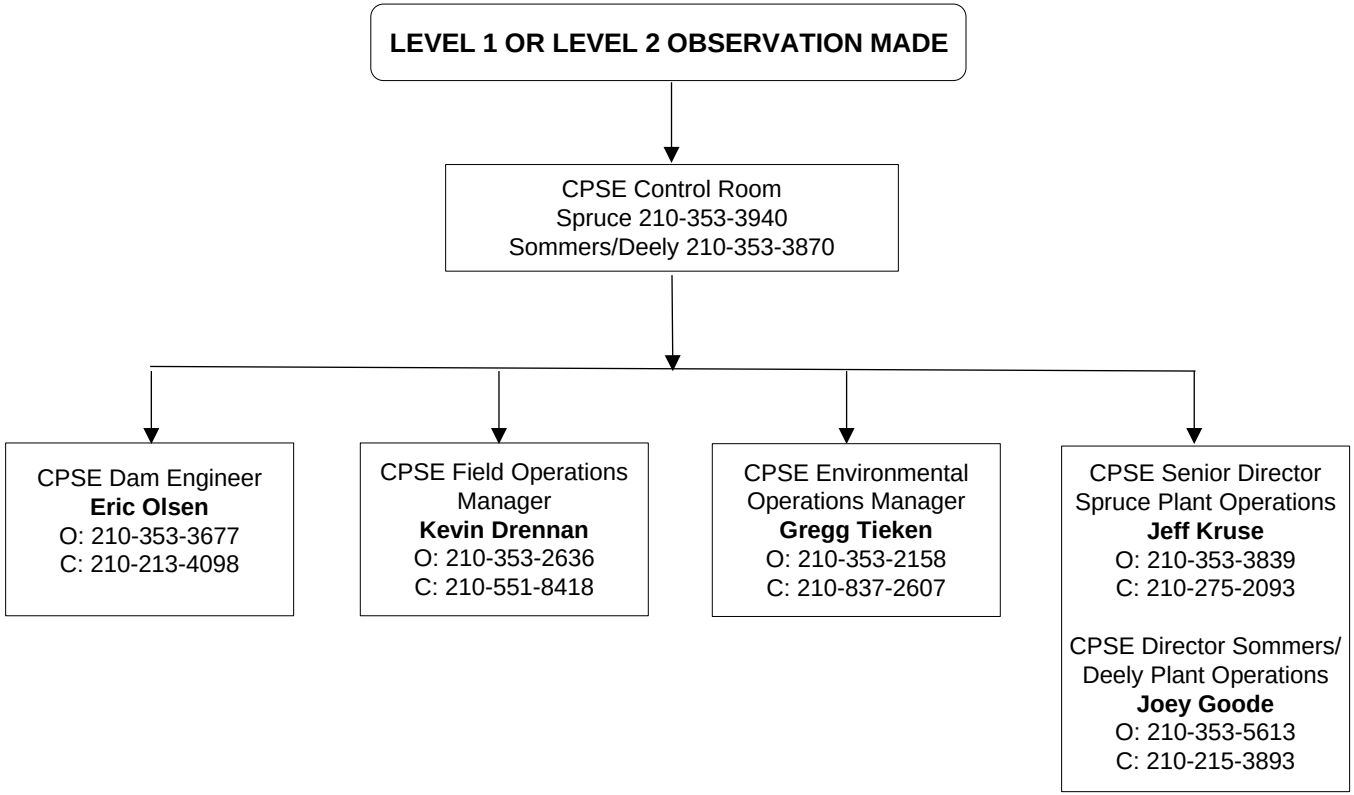
Chris Cunningham, P.E.
State of Texas License

Date: 5/17/17



Appendix B
Notification Flowcharts

B-1 NOTIFICATION FLOWCHART



B-2 NOTIFICATION FLOWCHART