

February 25, 2024
Revision 2

**Emergency Action Plan (EAP)
Stilling Pond (Including Retention Pond)
EPA Final Coal Combustion Residuals (CCR) Rule
TVA Cumberland Fossil Plant
Cumberland City, Tennessee**

1.0 Purpose

This letter documents TVA's certification of the Emergency Action Plan (EAP) for the TVA Cumberland Fossil Plant's Stilling Pond (including Retention Pond). The EPA Final CCR Rule requires owners or operators of significant or high hazard potential CCR surface impoundments to prepare and maintain a written EAP. Additionally, the written EAP, and any subsequent amendment to the EAP, must be certified by a qualified professional engineer that the EAP meets the requirements specified in 40 CFR 257.73(a)(3) of the CCR Rule.

2.0 Qualified Professional Engineer Certification

I, Stephen H. Bickel, being a Professional Engineer in good standing in the State of Tennessee, do hereby certify, to the best of my knowledge, information, and belief:

1. That the information contained in this certification is prepared in accordance with the accepted practice of engineering;
2. That the information contained herein is accurate as of the date of my signature below; and
3. That the EAP for the Stilling Pond (including Retention Pond) meets the requirements specified in 40 CFR 257.73(a)(3).

Signature Stephen H. Bickel Date 02/25/2024

Address: Stantec Consulting Services Inc.
9200 Shelbyville Road Suite 800
Louisville KY 40222-5136

Telephone: (502) 212-5000

Attachments: Emergency Action Plan



CCR UNIT EMERGENCY ACTION PLAN (Rev. 2)

CUMBERLAND FOSSIL PLANT CUMBERLAND CITY, TENNESSEE



TENNESSEE VALLEY AUTHORITY
1101 Market Street
Chattanooga, TN 37402-2801

Prepared by:

Tennessee Valley Authority

February 25, 2024 (Amended)

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1.0 PURPOSE

This Emergency Action Plan (EAP) provides guidance for identifying and responding to safety emergencies at the Stilling Pond (including Retention Pond) Coal Combustion Residuals (CCR) unit at the Cumberland Fossil Plant (CUF), herein referred to as Stilling Pond or unit, which has been categorized as a significant hazard potential CCR surface impoundment as required by 40 CFR 257.73(a)(2) of the Final CCR Rule. The EAP has been prepared, and will be maintained, in accordance with 40 CFR 257.73(a)(3) of the Final CCR Rule and with TVA's CCR Structural Stability Program (CCRSSP).

2.0 Map and Description of CCR Unit

In accordance with § 257.73(a)(3)(i)(D), the EAP must include a map which delineates the downstream area which would be affected in the event of a CCR unit failure and a physical description of the CCR unit.

The requisite map is attached as Appendix 1. The map was not revised from the 2019 EAP because there are no changes at the site that would result in greater downstream areas affected in the event of a CCR unit failure. Therefore, the map meets the requirements of the Final CCR Rule.

The Stilling Pond is located to the northwest of the powerhouse and contains both the Retention and Stilling Ponds. In the attached Potential Breach Maps, the Stilling Pond is referred to as the "Ash Pond" and "Ash Stilling Pond".

The Stilling Pond is enclosed by an earthen perimeter dike system constructed with cohesive fill. The overall constructed height of the dike system ranges from approximately 20 to 35 feet with interior and exterior slopes approximately 2.5H:1V to 3.0H:1V. The crest of the embankment is approximately 20 feet in width.

The Stilling Pond has been decanted and CCRs have been consolidated into the southwest portion of the unit. This area has been covered with 12-inches of vegetative cover and re-vegetated with grass. Within the southeast portion of the Stilling Pond, a Temporary Lined Basin has been constructed. The northern portion of the Stilling Pond

has been repurposed into a Process Water Basin. Process and stormwater flows pass through the Temporary Lined Basin and Process Water Basin before discharging through four outlet structures into a concrete discharge channel that leads to the Cumberland River through the permitted outfall.

3.0 Safety Emergency Identification and Detection Procedures

In accordance with 40 CFR 257.73(a)(3)(i)(A), the EAP must define the events or circumstances involving the CCR unit that represent a safety emergency and describe the procedures that will be followed to detect a safety emergency in a timely manner.

The Construction Manager and/or their representative conducts weekly observations of the unit and are trained to detect a real or potential safety emergency. In addition to the weekly observations, TVA performs regularly-scheduled inspections of the units described above per TVA's CCR Structural Stability Program. If the incident is discovered by plant personnel after hours of normal operations, the Cumberland Fossil Plant (CUF) Shift Operations Supervisor (SOS) office will coordinate directly with the Construction Manager. Upon detection of a condition that could result in a real or potential safety emergency, the Construction Manager is responsible for the immediate evaluation and classification of the condition into one of the following three classifications.

1. Potential Threat (Condition Yellow) – The potential for failure exists due to significant slope movement or stack subsidence without CCR material exposure or release. CCR material is contained within the unit but the conditions are currently unstable. The Construction Manager will work with the Responsible Manager to further evaluate and determine the appropriate repairs and whether deployment of contingent containment measures or additional notifications is necessary. This condition **IS NOT** considered a safety emergency and will not require activation of this EAP.
2. On-Site Uncontained Condition (Condition Orange) - CCR material has been released from the CCR unit but can be contained on-site. Immediate remedial action is required to prevent further migration of CCR material. The Construction Manager and the SOS will make the required TVA and appropriate external

notifications identified in Section 4.2. The local responders will be notified of the condition, but no action will be required from the external agencies. This condition **IS NOT** considered a safety emergency and will not require activation of this EAP.

3. Off-Site Uncontained Condition (Condition Red) – A significant impoundment or slope failure occurs which has the potential to result, or has resulted, in the off-site migration of CCR material. The Construction Manager and the SOS will make the required TVA and appropriate external notifications identified in Section 4.2. This condition **IS** considered a safety emergency and requires activation of this EAP.

4.0 Roles and Responsibilities and Notification Procedures

According to § 257.73(a)(3)(i)(B), the EAP must define responsible persons, their respective responsibilities, and the notification procedures in the event of a safety emergency involving the CCR unit.

4.1 Responsible Persons and Their Responsibilities

The following section describes the responsible persons and their respective roles and responsibilities under the EAP.

- Shift Operations Supervisor (SOS) – Responsible for notifying the TVA corporate emergency response operations staff and external agencies as required by the Site Emergency Response Procedures (SERP) and as identified in Section 4.2 and Appendix 2. Coordinates with Construction Manager.
- Construction Manager – Responsible for on-site response including initial assessment, notifications as identified in Appendix 2, and Contractor oversight. Serves as the primary interface with the Plant SOS.
- Responsible Manager – Responsible for conducting field evaluations to verify containment, assess stability, and the potential for continued or future CCR discharges. Coordination of the engineering response to an incident and assisting the Construction Manager in notifications and emergency response resources.

- Contractor Site Superintendent (when applicable) – Responsible for on-site response and containment of a CCR material release.

4.2 Notification Procedures

In the event of a real or potential safety emergency condition being identified, the CCRSSP Emergency Action Plan Notification Flow Chart provided in Appendix 2 will be followed utilizing the CUF CCRSSP Emergency Notification Matrix. Communication and coordination with outside agencies will be through the SOS. The SOS has plant specific site emergency response procedures for each of these notifications. Access to the unit, staging areas, and communications will be arranged and coordinated through this interface. Specific tasks that the SOS will perform with coordination from the Construction Manager in the event of a safety emergency include:

- Activate internal alarms and hazard communication system to notify plant personnel.
- Notify required response personnel.
- Identify the character, source, amount and extent of the release, as well as any other items needed for notification.
- Notify and provide necessary information to the appropriate Federal, State and local authorities in accordance with TVA site specific emergency procedure CUF-EP-35.001.
- Assess the possible hazards to human health and the environment due to the release.
- Assess and implement prompt removal actions to contain the CCR material.
- Coordinate rescue and response actions previously arranged with all response personnel.
- Coordinate activities for setting up the incident command, if needed.

5.0 Contact Information of Emergency Responders

In accordance with § 257.73(a)(3)(i)(C), the EAP must provide the contact information of emergency responders.

The contact information for emergency responders is provided below:

- CUF SOS – (931) 827-6213
- Stewart County EMA – (931) 232-8332 or (931) 232-3014

6.0 Meetings/Exercises

Per Rule § 257.73(a)(3)(i)(E), the EAP must 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.

Annual face-to-face meetings shall be conducted between representatives of TVA responsible for safety emergency response for the unit and the local emergency responders.

Records of such meetings or exercises will be incorporated into the operating record as described in Section 7.0.

7.0 Records

TVA will comply with all recordkeeping and notification requirements specified in 40 CFR 257.105, 257.106, and 257.107. The following records are maintained in an electronic auditable database for the unit's operating record and made publicly available through the "CCR Rule Compliance Data and Information" website.

- EAP and any revisions to the EAP.
- Documentation recording the annual face-to-face meeting or exercise between representatives of the owner/operator of the CCR unit and local emergency responders.
- Any activations of the EAP.

Notification of additions to the operating record must be sent to the Tennessee Division of Solid Waste Management within 30 days of being placed in the operating record.

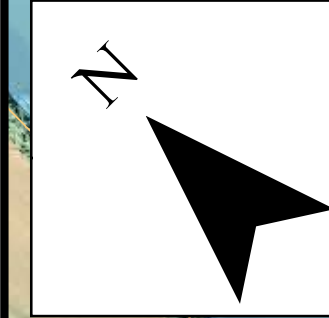
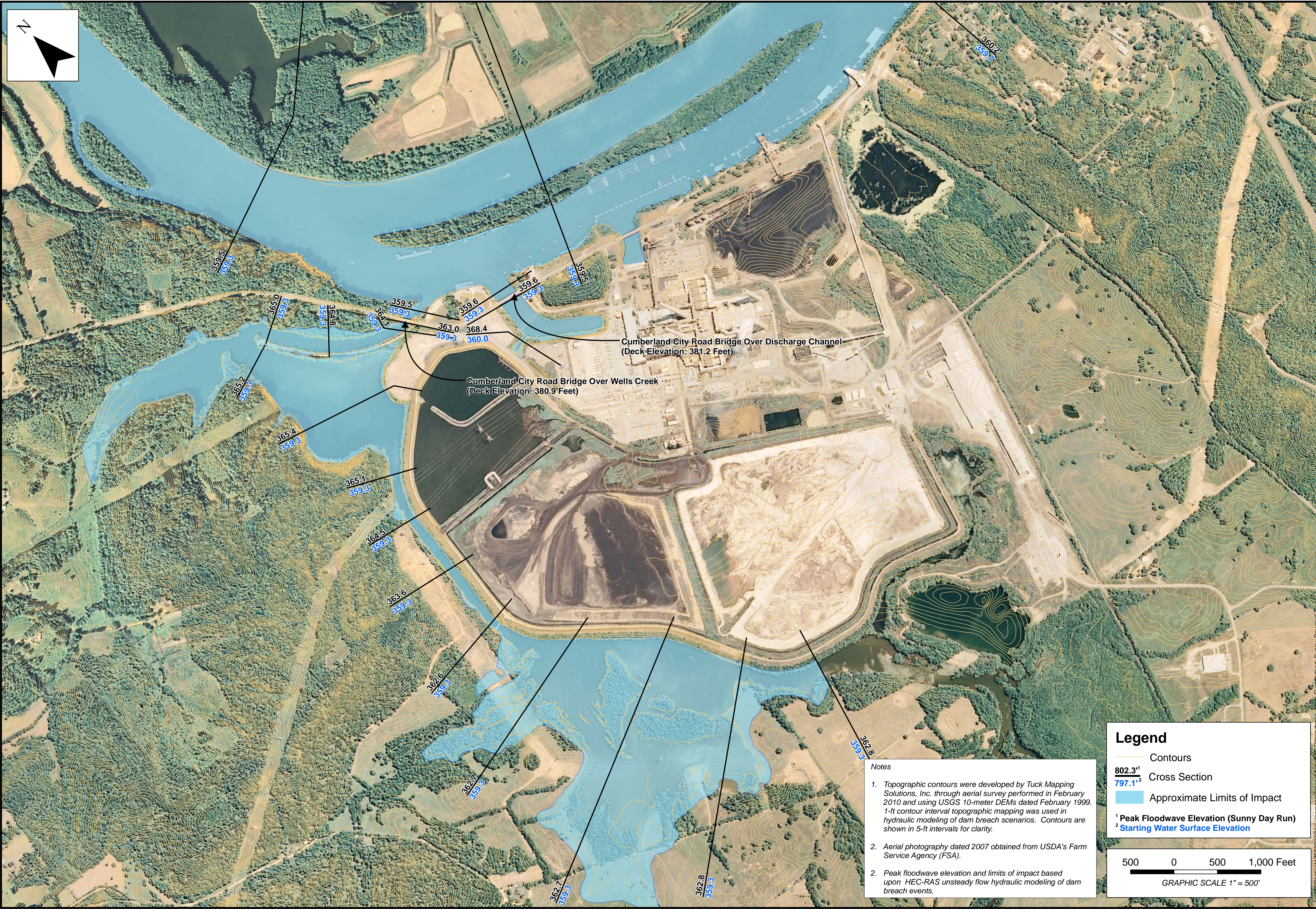
8.0 Amendments/Modification

Per Rule § 257.73(a)(3)(ii), the owner or operator of a CCR unit may amend the written EAP at any time and must amend the written EAP whenever there is a change in conditions that would substantially affect the EAP in effect. The revised EAP must be placed in the facility's operating record as required by § 257.105(f)(6). The written EAP must be evaluated at a minimum every five years to ensure the information required in § 257.73(a)(3)(i) is accurate. Additionally, pursuant to § 257.73(a)(3)(iii), if the owner or operator determines that the CCR unit is no longer classified as either a high hazard or significant hazard potential CCR surface impoundment, then the owner or operator is no longer required to maintain a written EAP beginning on the date when the periodic hazard potential assessment documentation is placed in the facility's operating records as required by § 257.105(f)(5).

If it is concluded in a periodic hazard potential assessment that this unit is no longer classified as a significant or a high hazard potential CCR surface impoundment, then the unit is no longer subject to the EAP requirements.

This EAP must be evaluated every five years at a minimum, but will be reviewed and evaluated annually as a matter of TVA policy. Additionally, the EAP will be amended in the event of a change of conditions that would substantially affect the EAP. As necessary, the EAP will be updated and the revised EAP will be placed in the facility's operating record as required by 40 CFR 257.105(f)(6). Amendments and modifications to the EAP will be recorded as described in Section 7.0.

APPENDIX 1
POTENTIAL BREACH MAPS



Cumberland City Road Bridge Over Discharge Channel
(Deck Elevation: 381.2 Feet)

Cumberland City Road Bridge Over Wells Creek
(Deck Elevation: 380.9 Feet)

- Notes
- Topographic contours were developed by Tuck Mapping Solutions, Inc. through aerial survey performed in February 2010 and using USGS 10-meter DEMs dated February 1999. 1-ft contour interval topographic mapping was used in hydraulic modeling of dam breach scenarios. Contours are shown in 5-ft intervals for clarity.
 - Aerial photography dated 2007 obtained from USDA's Farm Service Agency (FSA).
 - Peak floodwave elevation and limits of impact based upon HEC-RAS unsteady flow hydraulic modeling of dam breach events.

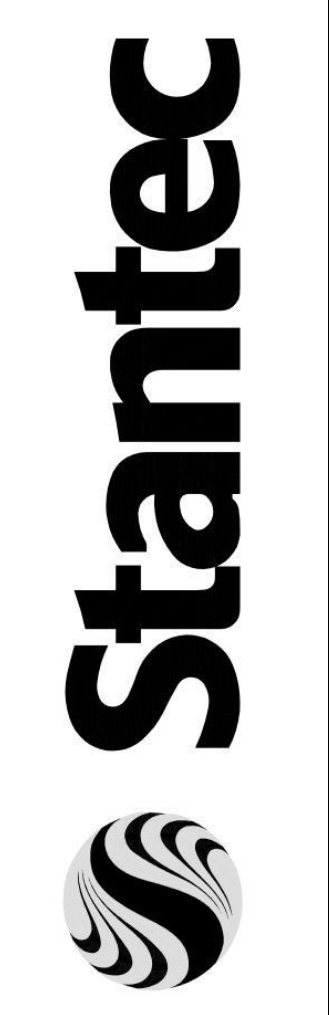
Legend

- Contours
- 802.3'¹ Cross Section
- 797.1'² Approximate Limits of Impact

¹ Peak Floodwave Elevation (Sunny Day Run)
² Starting Water Surface Elevation



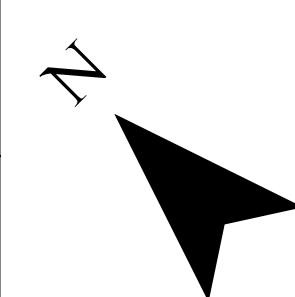
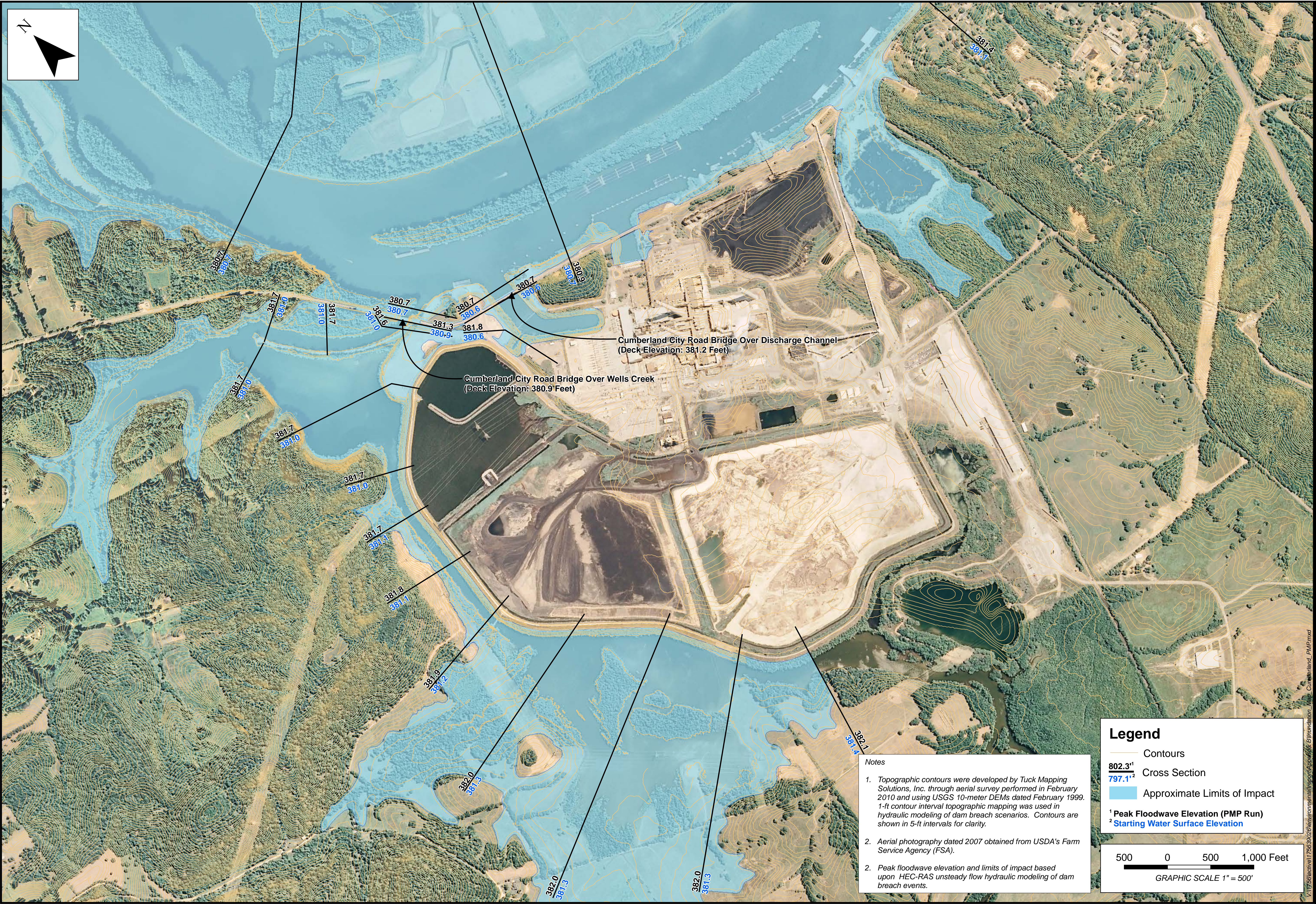
Stantec Consulting Services Inc.
11687 Lebanon Rd.
Cincinnati, Ohio
45241-2012
513-842-8200
www.stantec.com



Sunny Day Scenario Dam Breach Impact Zone
Fly Ash Pond Breach Analysis
Cumberland Fossil Plant
Tennessee Valley Authority
Stewart County, Tennessee

PROJECT NO.	175639026
DATE	March 2010
DRAWN BY	DEH
CHECKED BY	JRM
CHECKED BY	
SCALE	1" = 500'
REVISED	
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SHEET
Figure B3



Cumberland City Road Bridge Over Discharge Channel
(Deck Elevation: 381.2 Feet)

Cumberland City Road Bridge Over Wells Creek
(Deck Elevation: 380.9 Feet)

- Notes
- Topographic contours were developed by Tuck Mapping Solutions, Inc. through aerial survey performed in February 2010 and using USGS 10-meter DEMs dated February 1999. 1-ft contour interval topographic mapping was used in hydraulic modeling of dam breach scenarios. Contours are shown in 5-ft intervals for clarity.
 - Aerial photography dated 2007 obtained from USDA's Farm Service Agency (FSA).
 - Peak floodwave elevation and limits of impact based upon HEC-RAS unsteady flow hydraulic modeling of dam breach events.

Legend

- Contours
- 802.3'¹ Cross Section
- 797.1'² Cross Section
- Approximate Limits of Impact

¹ Peak Floodwave Elevation (PMP Run)
² Starting Water Surface Elevation



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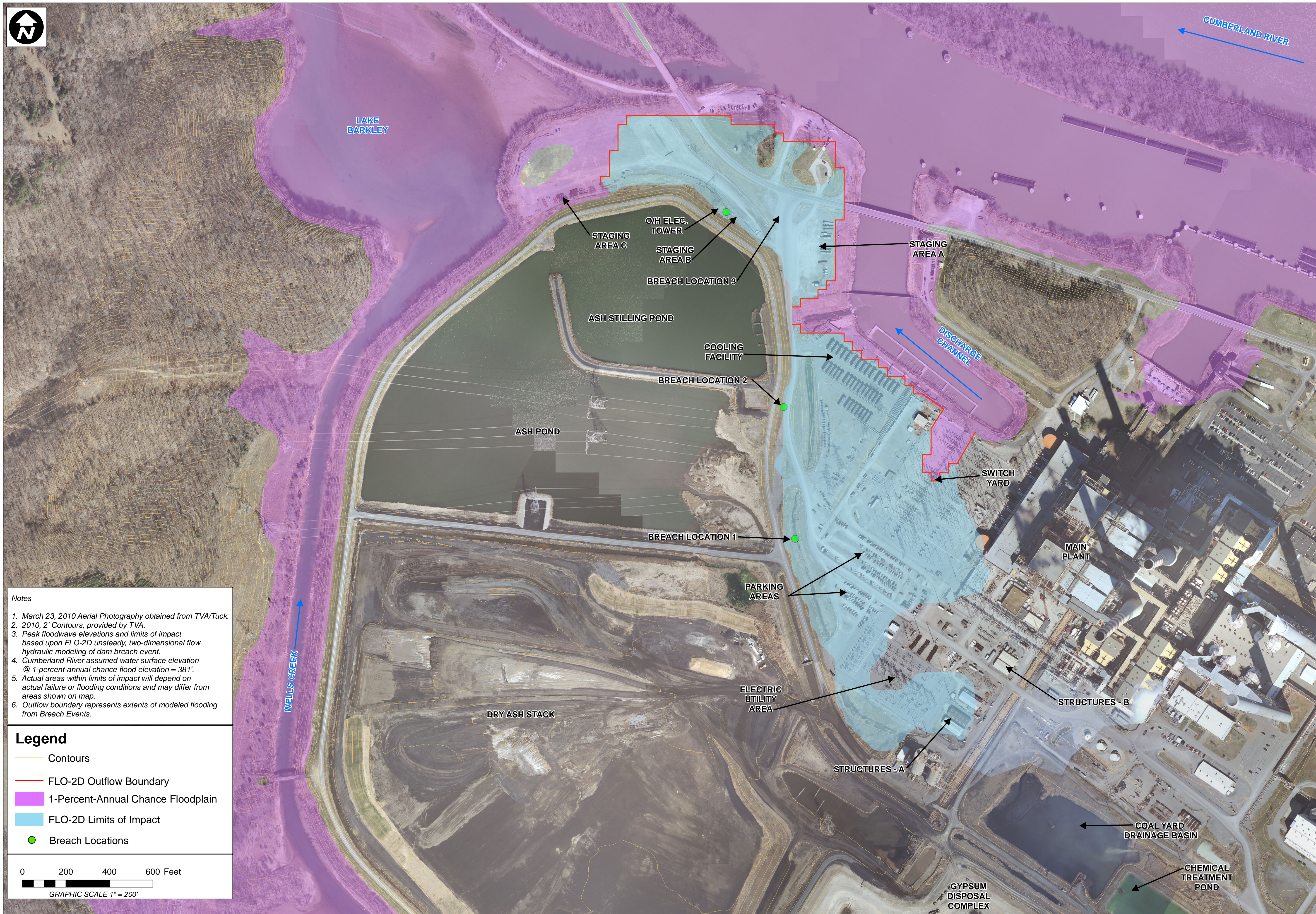
PMP Scenario Dam Breach Impact Zone
Fly Ash Pond Breach Analysis
Cumberland Fossil Plant
Tennessee Valley Authority
Stewart County, Tennessee

PROJECT NO.	175639026
DATE	March 2010
DRAWN BY	DEH
CHECKED BY	JRM
SCALE	1" = 500'
REVISED	
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SHEET

Figure B4

V:\175639026\environmental\report\Appendix B\Inundation_Map_Cumberland_PMP.mxd

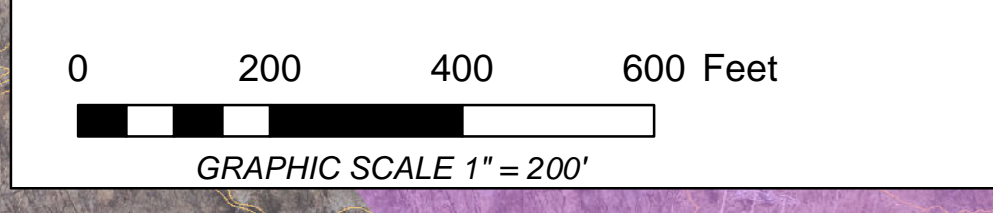


Notes

1. March 23, 2010 Aerial Photography obtained from TVA/Tuck.
2. 2010, 2' Contours, provided by TVA.
3. Peak floodwave elevations and limits of impact based upon FLO-2D unsteady, two-dimensional flow hydraulic modeling of dam breach event.
4. Cumberland River assumed water surface elevation @ 1-percent-annual chance flood elevation = 381'.
5. Actual areas within limits of impact will depend on actual failure or flooding conditions and may differ from areas shown on map.
6. Outflow boundary represents extents of modeled flooding from Breach Events.

Legend

- Contours
- FLO-2D Outflow Boundary
- 1-Percent-Annual Chance Floodplain
- FLO-2D Limits of Impact
- Breach Locations



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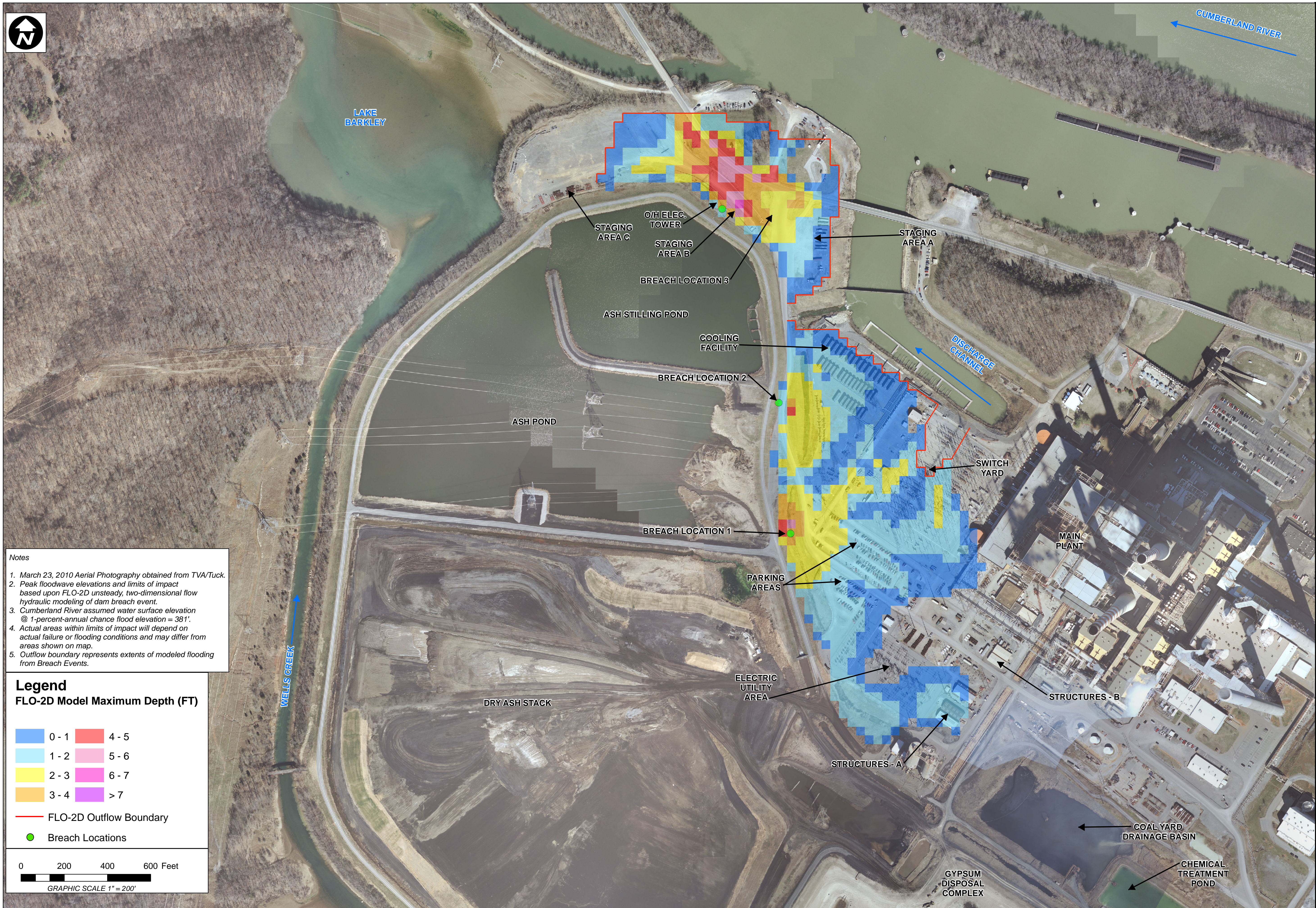
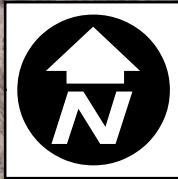


Dike Breach Impact Zone - PMP, Post-Spillway Improvements
Ash Pond
Cumberland Fossil Plant
Tennessee Valley Authority
Stewart County, Tennessee

PROJECT NO.	175630008
DATE	April, 2012
DRAWN BY	ANP
CHECKED BY	NMM
CHECKED BY	DNB
SCALE	1" = 200'
REVISED	
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Figure B.1

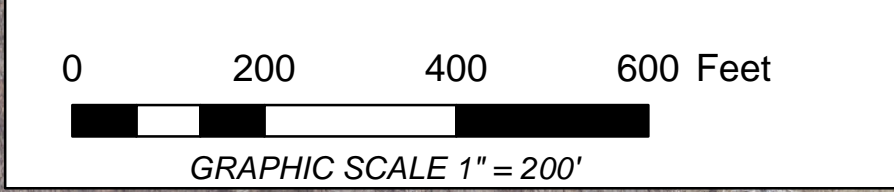


- Notes
1. March 23, 2010 Aerial Photography obtained from TVA/Tuck.
 2. Peak floodwave elevations and limits of impact based upon FLO-2D unsteady, two-dimensional flow hydraulic modeling of dam breach event.
 3. Cumberland River assumed water surface elevation @ 1-percent-annual chance flood elevation = 381'.
 4. Actual areas within limits of impact will depend on actual failure or flooding conditions and may differ from areas shown on map.
 5. Outflow boundary represents extents of modeled flooding from Breach Events.

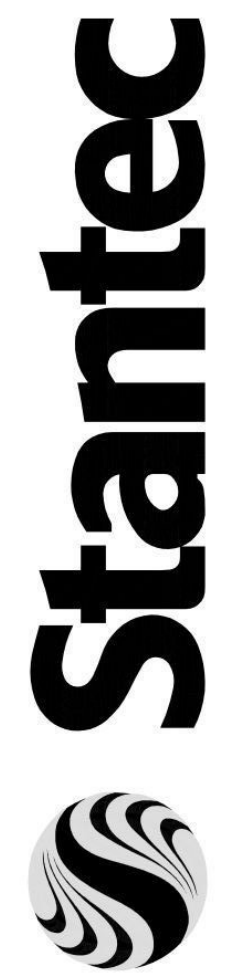
Legend
FLO-2D Model Maximum Depth (FT)

	0 - 1		4 - 5
	1 - 2		5 - 6
	2 - 3		6 - 7
	3 - 4		> 7

FLO-2D Outflow Boundary
 Breach Locations



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Dike Breach Inundation Depth - PMP, Post-Spillway Improvements
 Ash Pond
 Cumberland Fossil Plant
 Tennessee Valley Authority
 Stewart County, Tennessee

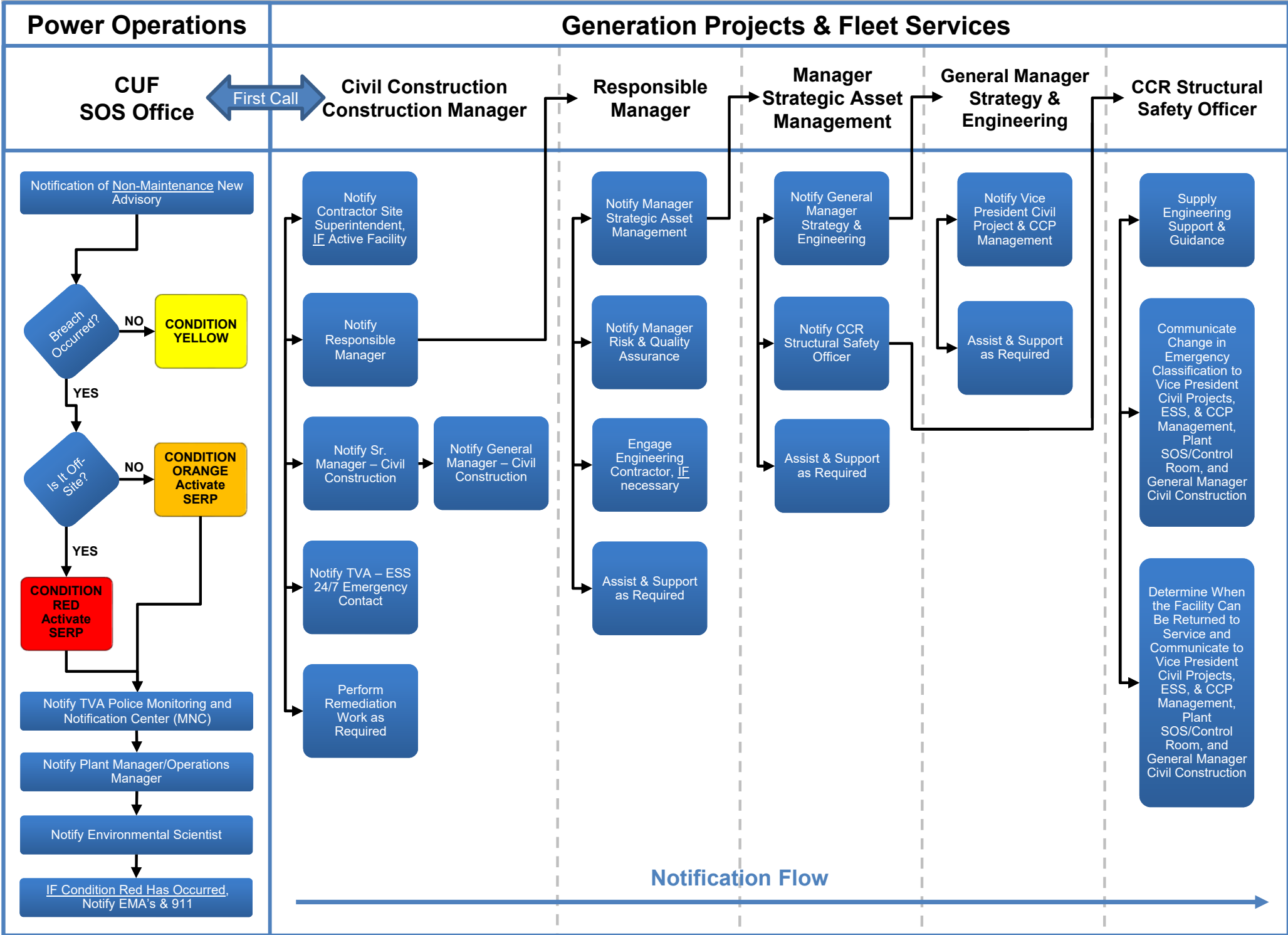
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DATE	April, 2012
DRAWN BY	ANP
CHECKED BY	NMM
CHECKED BY	DNB
SCALE	1" = 200'
REVISED	
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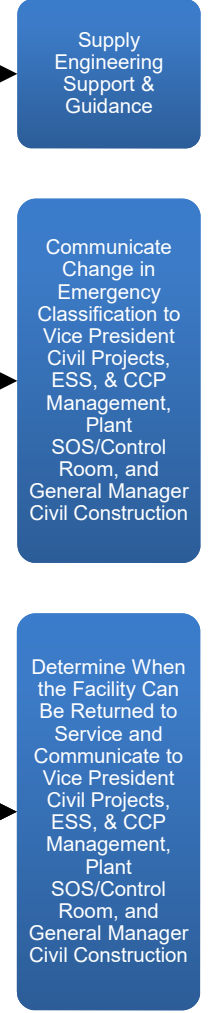
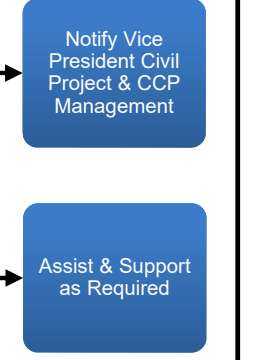
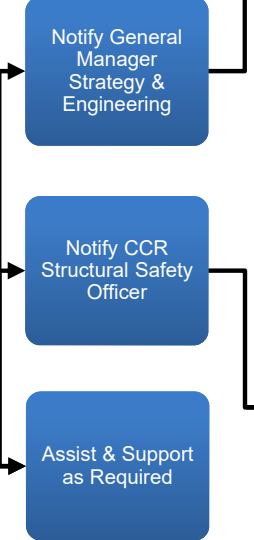
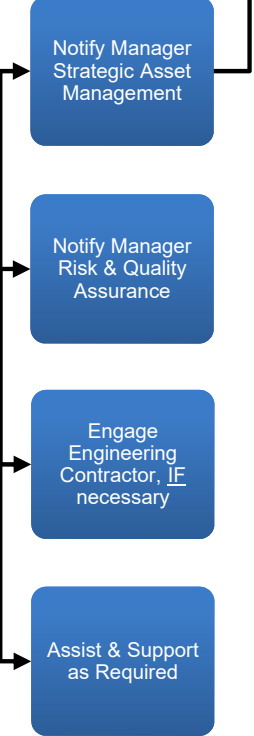
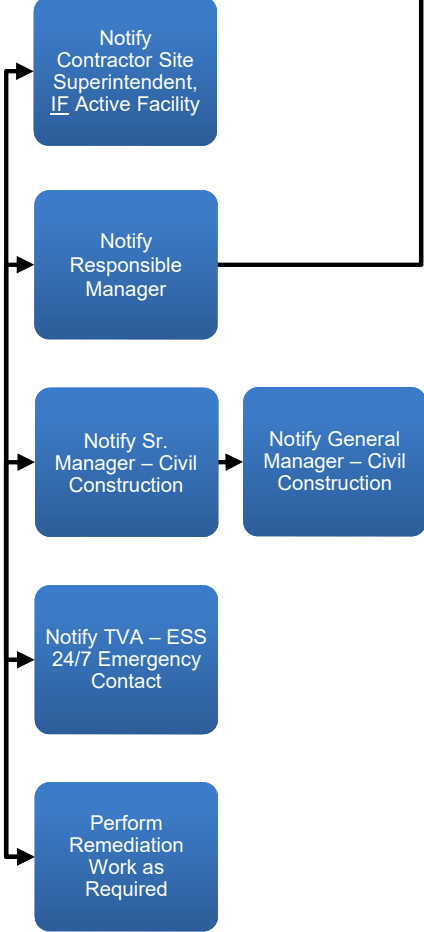
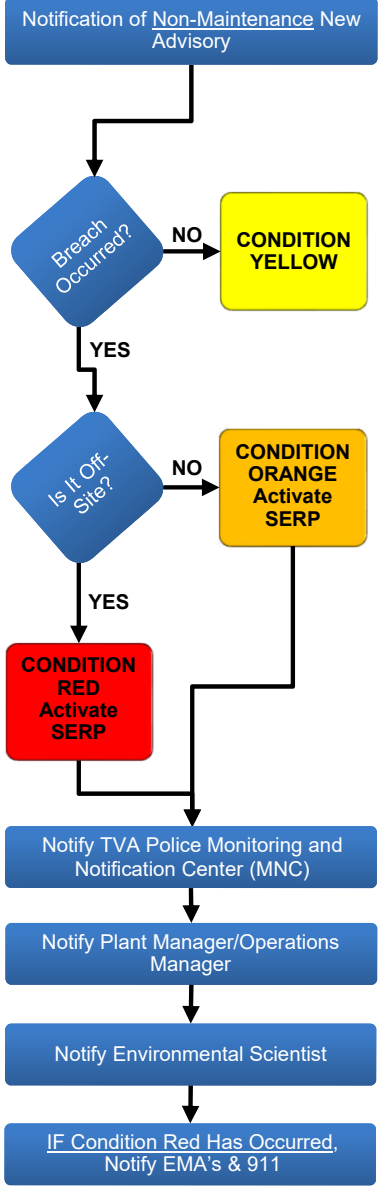
Figure B.2

APPENDIX 2
NOTIFICATION FLOW CHART

CCRSSP Emergency Action Plan Notification Flow Chart



Generation Projects & Fleet Services



Notification Flow

