

**APPENDIX 4**  
**(SOUTH CAROLINA DAM FAILURE EMERGENCY RESPONSE PLAN)**  
**TO THE SOUTH CAROLINA EMERGENCY OPERATIONS PLAN**

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**I. INTRODUCTION**

- A. A "Dam" is defined as any artificial barrier, together with interrelated works, including but not limited to dams, levees, dikes or floodwalls for the impoundment or diversion of water or other fluids where failure may cause danger to life or property.
- B. A catastrophic dam failure is characterized by the sudden, rapid and uncontrolled release of impounded water or the likelihood of such an uncontrolled release.
- C. There are lesser degrees of failure but any malfunction or abnormality outside the design assumptions and parameters which adversely affects a dam's primary function of impounding water is considered a failure.
- D. These lesser degrees of failure can progressively lead to or heighten the risk of a catastrophic failure. However, these type failures may also be addressed, minimized or halted through corrective actions.

**II. PURPOSE**

- A. Identifies how County, State and Federal agencies will prepare, respond, recover and mitigate resulting from a failure of regulated dams in South Carolina.
- B. Provides a comprehensive approach to managing and ensuring the State is able to assist those threatened from a dam failure.
- C. Assigns roles and responsibilities of agencies at the local, State and Federal levels tasked with the safety and security of regulated dams in South Carolina and describes how agencies will coordinate with Federal, State, and local agencies.
- D. Tasks State agencies and departments within South Carolina to provide primary or support roles during a dam failure incident.
- E. Describes how the State will mobilize resources and conduct activities to support local emergency management efforts through preparedness, response, recovery, and mitigation planning for a dam failure impacting South Carolina.

**III. SCOPE**

- A. Supplements the South Carolina Emergency Operations Plan (SCEOP).
- B. Applies to all regulated dams within or affecting South Carolina including the dams regulated by Federal Energy Regulatory Commission (FERC), Bureau of Reclamation (BOR), US Army Corps of Engineer (USACE), and the SC Department of Health and Environmental Control (DHEC).

- C. Provides guidance to departments and agencies involved in dam failure response activities.
- D. Identifies the actions required to respond to a dam failure incident.

#### **IV. ASSUMPTIONS**

- A. A dam failure at one or multiple larger dams could potentially destroy infrastructure and could quickly exceed State and local resources.
- B. For large dam failures, South Carolina Emergency Management Division (SCEMD) will request the Governor declare a State of Emergency.
- C. The State will require external resources to respond to a dam failure event.
- D. A dam failure incident at any dam may present an offsite flood hazard and affect the ability of the State to respond to the event.
- E. In the event of a dam failure in South Carolina, local, State, Federal, and dam owner resources will be utilized.
- F. Damaged primary and secondary roads may not be functional for extended periods of time.
- G. Damage to transportation, communication, and other infrastructure systems could isolate communities within the dam failure inundation areas.
- H. Shelters in the impacted area identified for use during other natural disasters may not be suitable for use.
- I. Reception Center and Sheltering operations may take place outside the impacted area.
- J. Significant aid from State/Federal government may not be readily available for at least 72 hours after a dam failure.
- K. The SC Logistical Plan, Statewide Mutual Aid Agreement, Emergency Management Assistance Compacts (EMAC), and other mutual aid agreements may be implemented.
- L. Established local and regional mutual aid agreements will be honored to the extent possible.

#### **V. FACTS**

- A. There are over 50,000 dams throughout South Carolina. Most are unregulated, small, and used primarily for recreational activities such as swimming, boating and fishing.

- B. The most commonly used structural material for the dams is earth. However, there are several rock-fill, masonry and concrete dams.
- C. Approximately 2,313 South Carolina dams are regulated, and managed under State law by DHEC.
- D. All dams in South Carolina fall under the purview of DHEC with the following exceptions:
  - 1. Less than 25 feet in height from the natural bed of the stream or watercourse measured at the downstream toe of the dam, or less than 25 feet from the lowest elevation of the outside limit of the dam, if it is not across a stream channel or watercourse, to the maximum water storage elevation and has an impounding capacity at maximum water storage elevation of less than 50-acre feet unless a situation exists where the hazard potential as determined by the department is such that dam failure or improper reservoir operation may cause loss of human life.
  - 2. Owned or operated by a department or an agency of the Federal Government.
  - 3. Owned or licensed by the FERC, the South Carolina Public Service Authority, the BOR, the USACE, or other responsible Federal licensing agencies considered appropriate by the DHEC.
    - a. The FERC, through licenses issued to utility companies and municipalities, regulates 35 hydroelectric dams affecting South Carolina (see Table 1 – List of FERC, USACE, BOR Dams In or Affecting South Carolina).
    - b. The USACE regulates three dams as well as several dikes and locks along the Savannah River, and one dam in the Santee River Basin (see Table 1 – List of FERC, USACE, BOR Dams In or Affecting South Carolina).
    - c. The BOR regulates one National Park Service dam, located at Ninety-Six, SC in Greenwood County (see Table 1 – List of FERC, USACE, BOR Dams In or Affecting South Carolina).
  - 4. Upon which the Department of Transportation, or County or municipal governments have accepted maintenance responsibility for a road or highway where that road or highway is the only danger to life or property with respect to failure of the dam.

## **VI. SITUATION**

- A. A dam breach in South Carolina could have adverse effect on the State's infrastructure.

- B. Almost every County in South Carolina could be affected by a dam failure within its County boundaries, or by a dam failure within an adjacent County, or State.
- C. Metropolitan areas and municipalities could be severely affected.
- D. Although no large dams have failed in South Carolina, there have been significant and destructive events. These incidents were primarily caused by heavy precipitation.
- E. The integrity of the dams may be challenged or compromised by upstream flash floods, earthquakes, neglect, bombs, civil disorder, rapid runoff, cracks, obstruction of spillways, or vandalism or any combination of the above. The resulting dam failure could result in personal injury or death, and property damage, as well as creating cascading effects including the risk of failures of downstream dams.
- F. Dam Categories.
  - 1. High Hazard – Dams whose failure or mis-operation will probably cause loss of human life or serious damage to home(s), industrial and commercial facilities, important public utilities, main highways or railroads.
  - 2. Significant Hazard – Dams whose failure or mis-operation results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or can impact other concerns. These dams are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure.
  - 3. Low Hazard - Dams whose failure or mis-operation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the owner’s property.
- G. Dam Failure Classifications
  - 1. “Failure is Imminent or Has Occurred” (also known as Class I, Condition A, Condition, Condition Red, or Rapidly Developing Situation).
  - 2. “Potentially Hazardous Situation Developing” (also known as Class II, Condition B, Condition Yellow, or Slowly Developing Situation).
  - 3. Non-Failure Emergency Condition
    - a. There is no danger of dam failure, but flow conditions may cause flooding downstream of the dam.
    - b. This classification is for monitoring purposes and would most likely not necessitate activation of the dam owner’s Emergency

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## Dam Failure Emergency Response Plan

Action Plan (EAP), County Emergency Operations Centers (EOC), and the State Emergency Operations Center (SEOC).

4. No standard dam failure classification exists for private dams within the State. For the purpose of this plan, all such emergencies are classified as “A Breach of”, or “Threat to” a State regulated or private dam.

### VII. CONCEPT OF OPERATIONS

#### A. General

1. SCEMD is the primary agency for this Appendix and is responsible for developing, coordinating, and maintaining procedures to support this Appendix.
2. In the event of a dam failure, the State Emergency Response Team (SERT) and SEOC will coordinate emergency operations in support of County EOCs.
3. SCEMD is responsible for ensuring all dam Emergency Action Plans are accurate and consistent with State and local EOPs.
4. The SCEMD Dam Safety Coordinator is responsible for coordinating Site-Specific Plans for FERC regulated dams.
5. Dam owners are responsible for immediately notifying the State and immediate at risk Counties if unsafe conditions are detected or likely.
6. Affected governments and individuals should be prepared to meet their own emergency needs during the first three days following the dam failure.
7. The SEOC and County Emergency Managers in the potentially damaged areas should identify and be prepared to designate Alternate EOCs should there be the risk of structural damage or actual damage to the primary EOCs.

#### B. Federal Energy Regulatory Commission Regulated Dams

1. Owners or parent companies of all FERC regulated High Hazard dams are required to develop, maintain, and exercise EAPs.
2. The goal of the State of South Carolina, in coordination with the affected Counties and the FERC regulated dam owners, is to develop and maintain Site Specific Plans for all FERC regulated dams.
3. Site Specific Plans consist of, at a minimum, impacts to infrastructure, alert and notification procedures, evacuation management and sheltering,

preparedness actions, inundation maps, roles and responsibilities, and supporting appendices.

4. There are two types of Site Specific Plans:
  - a. Detailed Site Specific Plans. These plans are prepared for FERC High Hazard Dams and require detailed response actions including, but not limited to mass evacuations of pre-identified zones, identifying evacuation routes and diversion routes, the affected infrastructure, and areas that may not be directly impacted by a dam's projected inundation area.
  - b. Abbreviated Site Specific Plans. These plans are developed for FERC High Hazard Dams with reduced potential impacts regarding affected populations, infrastructure, extent of inundation, etc. These plans address only unique aspects of response and require relatively limited planning for evacuation/diversion routes, and shelters.
5. FERC recommends the dam owners use two dam failure planning scenarios on the inundation maps - "Sunny Day" and "Probable Maximum Flood" conditions.
6. In order to determine the likely effects a dam breach could have on infrastructure, all FERC regulated High Hazard dam owner/utilities are expected to provide Geographical Information System (GIS) maps of the anticipated inundation areas to State and local agencies in order to enable the State, Counties and municipalities to identify the following possible affected infrastructure:
  - Transportation arteries (e.g., interstates, highways, streets, roads, rail lines and airports)
  - Communications (e.g., telephones lines and stations and broadcast media)
  - Public works and engineering outlets (e.g., water treatment, sewer and waste water facilities)
  - Firefighting resources (e.g., hydrants, tanks and refill locations, fire stations)
  - Shelters/Reception Centers
  - Health and medical facilities (e.g., hospitals, emergency medical service stations, healthcare facilities)
  - Cemeteries and graveyards
  - Potential Hazardous material sites (e.g., above ground and underground storage units, pipelines carrying hazardous materials and landfills)

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## Dam Failure Emergency Response Plan

- Energy providers (e.g., electric facilities, distribution lines and generating stations)
  - Law enforcement facilities
  - Schools
  - Animal care facilities (e.g., zoos, poultry farms and commercial livestock farms)
7. FERC regulated dam owners are required annually to provide copies of their most current EAPs to the SCEMD and impacted County Emergency Management Agencies.
  8. FERC Required Exercises.
    - a. Each licensee is required to conduct an annual EAP training session and drill to test the state of training and readiness of key licensee personnel responsible for actions during an emergency.
    - b. FERC recommends the dam owner conduct a Table Top Exercise involving the licensee, the State and local Emergency Management officials prior to a more comprehensive Functional or Full Scale Exercise. FERC Observers may evaluate the Table Top Exercise.
    - c. FERC requires each dam owner to conduct at least one comprehensive, FERC evaluated Functional or Full-Scale exercise at least every five (5) years, or when deficiencies requiring attention are identified.
  9. FERC Dam Owners, in coordination with State and County, will update their Site Specific Plans in the year prior to the FERC scheduled Functional Exercise.
- C. U.S. Army Corps of Engineer Dams.
1. The USACE has two districts in South Carolina which manage the dams, dikes, and berms under their purview - Savannah District and Charleston District.
  2. Both USACE Districts manage their programs separately.
  3. USACE Emergency Action Plans generally contain the following information: Emergency Condition Procedures; Emergency Notification Procedures; Operational Procedures for Emergencies; Hydraulic Analyses; Inundation Maps; Listing of Available Resources; and Pertinent Data Associated with Each Dam.
  4. The USACE requires the plans be exercised and updated annually.

D. Bureau of Reclamation Regulated Dams.

BOR regulated dams generally follow the same requirements as USACE dams.

E. SC Department of Health and Environmental Control Regulated Dams

1. The owners of “High” (Class 1) and “Significant” (Class 2) hazard potential dams are required by the Dams and Reservoirs Safety Act Regulations to maintain EAPs.
2. The owners of “High” (Class 1) and “Significant” (Class 2) hazard potential dams must provide DHEC with current EAPs for their dams, formatted and updated per frequency as outlined in DHEC regulations.
3. Although owners of “Low Hazard” dams are not required to submit EAPs, DHEC will survey “Low Hazard” dams every five (5) years to determine if their hazard levels necessitate a classification changed.

F. Alert and Notifications

1. General.

- a. Most small or non-regulated dam owners do not have advanced communication systems and will primarily communicate via telephone (cell or landline).
- b. Dam owners with a more robust response capability may have an Emergency Operations Facility (EOF) and may communicate using some or all of the following mechanisms:
  - Regular telephone lines
  - Local Government Radio (LGR)
  - 800 MHz
  - Mobile telephones
  - Microwave communications systems
  - Email
  - Satellite Phones

2. Notification of State and Local Emergency Managers

- a. Each dam owner is responsible for notifying the State Warning Point or SEOC, and County Warning Point or EOCs of a dam failure emergency.



- b. The dam owner's EAP describes in detail procedures for notification of specific State and local Emergency Management organizations.
  - c. Dam owners will develop notification procedures for both a "Failure is Imminent or Has Occurred" or "A Potentially Hazardous Situation Developing" classification levels.
  - d. Once an emergency is confirmed at the dam, the owner will issue a "Failure is Imminent or Has Occurred" and "A Potentially Hazardous Situation Developing" classification level, dependent on severity of dam breach, simultaneously make internal notifications, and notify the affected Counties, SCEMD, and the National Weather Service (NWS).
  - e. After receipt of initial notification, the State Warning Point will execute the Dam Failure Checklist which includes procedures for verifying and confirming notification of affected Counties.
  - f. The SEOC and affected County EOCs will activate for a "Failure is Imminent or Has Occurred" or a "Potentially Hazardous Situation Developing" situation to the level necessary to address the emergency.
  - g. Dam owners will maintain communications with the affected County EOCs and SEOC for the duration of the emergency.
3. Alert and Notification of the Populace
- a. Siren Systems
    - (1) Several regulated dams in South Carolina have siren systems to alert the populace to turn on radios/televisions and listen to Emergency Alert System (EAS) messages.
    - (2) Dam owners will test their sirens according to the dam owner's procedures.
    - (3) Dam owners will activate their sirens to warn downstream residents in coordination with the County Emergency Management and/or the SEOC/State Warning Point.
  - b. Automated Telephonic Notification System
    - (1) Several Counties have a system to conduct automated telephonic notification. Notification will be prioritized (or phased) based on threat (such as speed flow of water).

- (2) SCEMD will initiate the Emergency Notification System to alert emergency responders and the threatened population of possible danger.
- c. The NWS will activate Tone Alert Radios and issue either Flash Flood Watch or Flash Flood Warning for the affected areas, as appropriate.
- d. Emergency Alert System
  - (1) The SEOC or affected Counties will activate EAS and will broadcast emergency action messages upon verified notification of a potential or imminent dam failure.
  - (2) The SEOC and/or Counties will coordinate the activation of the sirens with the initiation of the EAS message-broadcast.
- e. Counties or municipalities will use Route Alert or door-to-door notifications as a backup and as appropriate.

G. Security

1. At Dam

- a. Dam owner security personnel will control entrance to the dam(s) and their Emergency Operations Facilities (EOF).
- b. Some dam owners have worked out individual contracts between the owner and County/municipality to provide security on their property.

2. Downstream and Upstream Areas

- a. Upon declaration of “A Failure is Imminent or Has Occurred” classification
  - (1) The SC Department of Public Safety (SCDPS) in coordination with ESF-16 (Emergency Traffic Management) will coordinate with local law enforcement authorities to assist in sealing off the inundation areas to include coordinating ingress and egress points, and controlling access points based on evacuation and traffic management plans.
  - (2) The South Carolina Law Enforcement Division (SLED), through ESF-13 (Law Enforcement), will coordinate with local law enforcement authorities to assist in general law enforcement and security operations.

- (3) The Department of Natural Resources (DNR) in coordination with ESF-16 (Emergency Traffic Management) and ESF-13 (Law Enforcement) will coordinate the clearance of waterways/boat landings and preventing unauthorized waterway access to areas downstream (in the floodplain) and upstream from the dam or the secure area.
- (4) ESF-1 (Transportation) will coordinate air space management.
- b. Use of South Carolina National Guard (SCNG) assets and implementation of the State Law Enforcement Mutual Aid Plan (SLEMAP) may be required.
- c. Some or all of the above actions may be required during “A Potentially Hazardous Situation Developing” classification level.
- d. A credible terrorist threat may also require increased security during either a “Failure is Imminent or Has Occurred” classification or “Potentially Hazardous Situation Developing” classification declaration.

H. Evacuation

- 1. County and municipal governments are responsible for executing evacuation and sheltering operations in coordination with ESF-1 (Transportation), ESF-6 (Mass Care), ESF-8 (Health and Medical Services), ESF-16 (Emergency Traffic Management), ESF-17 (Animal/Agriculture Emergency Response), and ESF-19 (Military Support).
- 2. Immediately after receiving notification of a potential or actual dam failure from the dam owner; SCEMD, County EOCs and the dam owner will collectively coordinate requirements for a precautionary, limited evacuation of areas closest to or downstream of the dam.
  - a. If water from the affected dam is moving slowly, the County Director may ask SCEMD to make a recommendation to the Governor to evacuate specified areas.
  - b. If conditions are deteriorating rapidly, SCEMD may recommend The Governor evacuate selected areas, or the County Directors may direct a local evacuation.
- 3. Evacuation Zones
  - a. The purpose of identifying evacuation zones is to allow potentially affected residents to determine if their homes will be inundated;

establish what transportation nodes will be affected; and ensure affected populations evacuate in an orderly manner, where possible in one direction, to avoid confusion.

- b. These zones must be:
  - (1) Describable over radio/TV media to public.
  - (2) Based upon easily identifiable roadways or natural features for boundary identification.
  - (3) Generally based on the inundation areas as defined by the most recent dam break analysis, contracted by the Dam owner, if applicable.
- c. Evacuation zones are pre-identified for the following dams:
  - Lake Murray
  - Santee
  - Lake Wateree
  - Pinopolis
  - Cherokee Falls
  - Lake Secession
  - Lake Greenwood

#### 4. Traffic Management

- a. The County Sheriffs, in coordination with the SCDPS and other law enforcement agencies, will coordinate traffic evacuation activities.
- b. For pre-established evacuations zones, the Counties have established evacuation routes, and designated shelter or Reception Center locations for residents in each zone.
- c. For pre-established evacuations zones, the SCDPS has pre-selected Traffic Control Points (TCP) along evacuation routes and at selected points to restrict movement into the inundation area.
- d. ESF-1 (Transportation) will determine routes around the inundation area and coordinate with ESF-16 (Emergency Traffic Management) to establish roadblocks and TCPs or Diversion Points to facilitate the flow of traffic and ensure traffic is routed correctly with a minimum of delay.

- e. In most cases, diversion routing will be set-up and begun in Counties outside of inundation areas and will be maintained for the duration of the inundation, and the resulting response and recovery.

5. Special Evacuation Requirements

- a. The affected Counties are responsible for providing transportation to evacuees lacking personal transportation or who require special transportation. State assistance will be provided, as available, upon request.
- b. Priority of evacuation assistance will be given to those facilities and populations classified as highly vulnerable.
- c. Consideration will be given to evacuating schools in advance of a general population evacuation.
- d. Evacuation considerations should also be given to dependent populations (children with disabilities, individuals with special health care needs, others with access and functional needs, unsupervised minors, victims of domestic violence, and those with limited English proficiency, and respective care givers).
- e. Licensed facilities are required to develop and coordinate evacuation plans with local government.
- f. State and County corrections organizations will develop and coordinate plans with local government to relocate prisoners.

6. Re-Entry

- a. Re-entry into the inundation area may not be allowed immediately after the floodwaters recede.
- b. Local Emergency Management officials will authorize re-entry only after State and local Emergency Management officials determine that hazardous conditions no longer exist.
- c. After a final decision is made by local Emergency Management officials, the SEOC will release an immediate announcement to that effect.

I. Sheltering

- 1. Considerations for emergency sheltering and evacuations will include additional populations (such as tourists, vacationers, and transients) in the State for the emergency response effort.

2. In the event of an evacuation for a dam failure, the American Red Cross (ARC) will open shelters in the affected County, outside of the inundation area, or in a Host (receiving) County if necessary.
  3. The ARC manages General Population Shelter operations in coordination with the Counties and ESF-6 (Mass Care).
  4. DHEC manages Special Medical Needs Shelter (SMNS) operations in coordination with the Host Counties and ESF-6 (Mass Care).
  5. Sheltering procedures.
    - a. ARC will open shelters in the County, outside of the impact zone, or in designated Host County(ies), as needed.
    - b. DHEC will open SMNSs in the affected area or in designated Host County(ies) as required.
    - c. The Governor may order County schools located in the impacted or host counties to be closed, and then designated and utilized as shelters.
    - d. If the dam failure is significant enough to displace a population exceeding available sheltering capability, ESF-6 (Mass Care) may request tent cities to be erected outside or near the impacted County, Host Counties, and possibly other Counties to accommodate the evacuee population.
    - e. ESF-6 (Mass Care) will manage feeding support to the sheltering operations.
  6. Host County Sheltering
    - a. Based on the evacuation zones and associated evacuation routes, Host County shelter may need to accept up to 30% of the vulnerable/evacuating public.
    - b. While specific dam failure Host County shelters may have not been identified, any current designated shelters may be available for use.
- J. Public Information
1. See Annex 15 (Pubic Information) to the SCEOP for information on Public Affairs operations.
  2. At a minimum; SCEMD, the affected Counties, and the dam owner will provide public information personnel to staff the Joint Information Center (JIC).

3. Public Education

- a. Dam Owners should develop a public information program which addresses potential hazards resulting from a dam failure at the dam, appropriate actions for public self-protection in the event of a failure, and State and local dam failure emergency response programs.
- b. Ideally, the dam owner should provide this information in the form of pamphlets, brochures, or posted on their Company websites. This information should include the following elements:
  - (1) Possible causes of dam failures and potential threats to the persons and property in the affected areas.
  - (2) Public alert and notification mechanisms.
  - (3) Appropriate actions for public self-protection.
  - (4) Sources of additional information prior to and during an emergency.
  - (5) Information relating to State, local, and the dam owner's response plans including, but not limited to, evacuation sectors, routes, sheltering, and life-saving precautions.
  - (6) Information relating to special segments of the population including schools, day cares, hospitals/nursing homes, other institutions and physically impaired, mentally impaired and transportation of dependent individuals (includes, children with disabilities, individuals with special health care needs, others with access and functional needs, unsupervised minors, victims of domestic violence, and those with limited English proficiency, and respective care givers)
- c. Dam owners will disseminate educational information primarily through the following means:
  - (1) Print Media or Company Website. The dam owner should publish annually a Dam Failure Emergency Information Brochure and distribute it to all households and businesses located in the inundation area and/or post it on the Company website.
  - (2) Social Media. Provide additional public education information and updates.

- d. The dam owner should continue to provide additional public education information throughout entire incident.
4. See Attachment A (EAS Messages) to Annex 1(Lake Murray Dam Site Specific Plan), Annex 2 (Santee Dam Site Specific Plan) and Annex 4 (Pinopolis Dam Site Specific Plan) for example Emergency Alert System Messages.
5. See Attachment B (News Releases) to Annex 1(Lake Murray Dam Site Specific Plan), Annex 2 (Santee Dam Site Specific Plan) and Annex 4 (Pinopolis Dam Site Specific Plan) for example News Releases.

## **VIII. ASSIGNMENT OF RESPONSIBILITIES**

### **A. General**

1. State agencies assigned specific missions as outlined in this Plan will develop specific procedures and checklists necessary to accomplish their assigned tasks.
2. State, County and local governments and agencies will track and document their costs for possible future re-imbursement.

### **B. Regulated Dam Owners**

1. Ensure compliance with FERC, BOR, USACE or DHEC guidance.
2. Develop, coordinate, test, and implement dam failure EAPs.
3. Assist in the development and update of Site Specific Plans for effected dams.
4. Ensure dam security.
5. Inspect dams as required by FERC, BOR, USACE or DHEC guidance.
6. Participate in periodic drills and exercises of appropriate EAPs to ensure plans are accurate and feasible.
7. Conduct dam failure training in accordance with State and Federal emergency response requirements.
8. Maintain personnel and equipment in a state of readiness appropriate to anticipated dam failures.
9. If applicable, install, operate, maintain, and periodically test siren system.
10. In coordination with Counties and ESF-15 (Public Information), develop a public information program (i.e. pre-scripted news releases, public information materials).



11. Develop procedures to provide timely information and recommendations to the SEOC and affected Counties during both a “Failure is Imminent or Has Occurred” and a “Potentially Hazardous Situation Developing” classification level events.
12. Ensure State and affected Counties are immediately notified if unsafe conditions are detected or likely.
13. Initiate warning as detailed in each respective EAP.
14. Provide regular information updates to SEOC and threatened jurisdictions.
15. Provide authorized spokesperson to support public information activities at the JIC.
16. Prepare and disseminate public information through appropriate news media and in coordination with ESF-15 (Public Information).
17. Secure dam during either a “Failure is Imminent or Has Occurred” classification level or a “Potentially Hazardous Situation Developing” classification level event.
18. Monitor flood emergency to assist in determining when it is safe for re-entry into flooded or threatened areas.
19. Phase down operations as directed by/or coordinated with the SEOC.
20. Conduct evaluations of dam failure related damage and determine improvements.

C. County

1. Preparedness
  - a. In coordination with FERC dam owners and ESF-15 (Public Information), develop a public information program (ie. pre-scripted news releases, public information materials).
  - b. Determine notification methods for schools, health care facilities, and nursing homes
  - c. Ensure tone alert radios are issued to all schools in the inundation area.
  - d. In conjunction with SCEMD, develop evacuation areas.
  - e. In conjunction with ESF-16 (Emergency Traffic Management), coordinate evacuation and traffic management.

- f. Identify dependent populations and populations with special transportation needs including schools, health care facilities, nursing homes, prisoner populations, and those without transportation. Develop corresponding plans to ensure timely evacuation.
  - g. Develop a shelter plan and identify shelter locations to support estimated displaced county population. Identify populations with special sheltering needs.
  - h. Identify water distribution points to support the population without water service.
  - i. Develop distribution plans for portable toilets to support the population without water/waste service.
  - j. Determine mass care and feeding requirements.
  - k. Develop debris removal plans.
  - l. Participate in dam failure exercises to test functions and plans.
2. Response
- a. Support the public information program and provide an authorized spokesperson/representative to support public information activities at the JIC.
  - b. Ensure schools, health care facilities, and nursing homes are notified.
  - c. Activate traffic management and evacuation plans (including health care facilities/nursing homes).
  - d. Coordinate execution of shelter plans to include support for populations with special needs.
  - e. Assist with mass care, feeding, and water distribution.
  - f. Assist with special transportation needs.
  - g. Support plans for portable toilets to support evacuated populations.
  - h. Coordinate recovery of un-interred human remains and determine which cemeteries have been affected.
  - i. Execute swift water rescue operations.
  - j. Provide the SEOC with reports on deaths, injuries, and damages.

- k. Coordinate with SEOC for resources not available or needs beyond the County's capabilities.
- 3. Recovery
    - a. Coordinate traffic management re-entry plans for evacuees to include re-entry of populations with special transportation needs.
    - b. Support displaced populations
    - c. Assist water distribution to populations without water service.
    - d. Assist with portable toilets to support the population without water/waste service.
  - 4. Mitigation
    - a. Support mitigation actions as required.
    - b. Establish and conduct dam failure mitigation and awareness public education programs.
- D. South Carolina Emergency Management Division
- 1. Maintain surveillance of potentially threatening conditions to and in South Carolina, and coordinate appropriate warning and response actions.
  - 2. Develop Geographic Information System (GIS) and additional information systems to display maps to assess, process, and display emergency information about the dam failure.
  - 3. Assist affected Counties and High Hazard FERC dam owners in developing Site Specific Plans.
  - 4. Analyze FERC dam owner prepared inundation areas to determine the threat to infrastructure both downstream and upstream.
  - 5. Identify infrastructure priorities for dam failure aerial reconnaissance.
  - 6. Coordinate with the affected Counties, SCDPS and DOT to develop evacuation zones based on the inundation maps provided by the utilities.
  - 7. Conduct Critical Needs Assessment for dam failure response to include information on resource availability, shortfalls, and where additional resources can be obtained.
  - 8. Assist affected State agencies in the inundation area with developing plans to relocate and ensure continuity of operations.

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## Dam Failure Emergency Response Plan

9. Assist dam owners with on-going statewide dam safety program, to include training, public information and education.
  10. Assist with periodic exercises to test State and local plans to ensure accuracy.
  11. Encourage mutual aid agreements with Federal agencies, other States, private industry and relief organizations and between local governments.
  12. Support County emergency operations during dam failures.
  13. Advise the Governor, State agencies, local government officials, and, if necessary, Federal agencies of severity and magnitude of the emergency/disaster situation.
  14. Implement and manage a Joint Information System, and coordinate the release of emergency information through ESF-15 (Public Information).
  15. Prepare an Incident Action Plan (IAP) to direct response actions and resource allocations.
  16. Use the Operational Area concept, as applicable for response and resource deployment to areas isolated as a result of severe transportation infrastructure damage.
  17. Through ESF-9 (Search and Rescue), support Search and Rescue operations and Swift Water Rescue operations.
  18. Coordinate with Federal, State, and local agencies to provide assistance to affected Counties as requested.
  19. Assist with obtaining/distributing water to support the population without water service.
  20. Coordinate assistance to Counties for debris removal.
  21. Support mitigation actions, as required.
  22. Maintain copies of all FERC, USACE, BOR, and DHEC Dam EAPs and ensure consistency with State and local EOPs.
  23. Maintain and update this plan on an annual basis and ensure distribution.
- E. Department of Health and Environmental Control
1. Regulates dams under their regulatory purview.
  2. In accordance with DHEC guidelines, ensure owners of “High Hazard” and “Significant Hazard” dams develop EAPs and conduct dam safety drills and exercises on a scheduled or as warranted basis.

3. Ensure these EAPs are reviewed and updated per DHEC guidelines.
  4. Inspect DHEC regulated dams on the following schedule:
    - “High Hazard” dams - Bi-annually
    - “Significant Hazard” dams - Every three (3) years
    - “Low Hazard” dams are not inspected. Although “Low Hazard” dams are not required to submit and EAP, DHEC will survey the dams every five (5) years to determine any change in their hazard level.
  5. Conduct on-going statewide dam safety program, to include public information and education.
  6. Coordinate with Counties to develop plans for supporting populations without water service.
  7. Coordinate with Federal, State and local agencies to provide assistance in support of dam safety training.
  8. Assist in monitoring precipitation forecasts that may contribute to dam failures.
  9. Monitor statewide dam safety occurrences, losses, and cause factors.
  10. Identify impacted health care facilities and nursing homes, review effected health care facilities and nursing home evacuation plans and verify notification mechanisms.
  11. Develop system to notify affected regulated hazardous materials treatment, storage and disposal facilities in the effected inundation area.
  12. Assist in developing plans to recover deceased victims of the dam failure.
  13. Identify hazardous waste facilities in the inundation area.
  14. During a failure, activate a State Dam Failure Advisory Team to man the SEOC.
  15. Plan for, establish and operate SMNS as needed.
  16. Following a failure, evaluate damage and determine mitigation improvement methods.
- F. SC Department of Transportation
1. Coordinate with ESF-16 (Emergency Traffic Management) to support evacuation operations.

2. Coordinate with ESF-13 (Law Enforcement) to support security for the inundation area.
  3. Coordinate procedures to evaluate road structure integrity.
- G. SC Department of Public Safety
1. Coordinate with local law enforcement authorities to develop, coordinate and implement evacuation and traffic management plans, and plans for routing traffic around inundation area and larger metropolitan areas.
  2. Coordinate with DNR to develop plans to clear upstream lakes and downstream waterways in inundation area.
- H. SC Law Enforcement Division
1. In coordination with ESF-13 (Law Enforcement), develop plans to assist local law enforcement authorities with security in the inundation area.
  2. Provide specialized support assets to include:
    - a. Aviation support for evacuation (including public address system, rescue, and security operations).
    - b. Forensic support.
    - c. Investigative and crime scene services should the breach be determined to be by intentional means (terrorist acts).
    - d. Coordination of additional assets through activation of the State Law Enforcement Mutual Aid Plan (SLEMAP).
- I. Department of Natural Resources
1. In conjunction with ESF-13 (Law Enforcement) and ESF-16 (Emergency Traffic Management), develop plans to clear the upstream areas and downstream waterways in the inundation area.
  2. Patrol the lake and recreational areas to prevent access downstream from the dam.
- J. Department of Corrections
1. Develop procedures to relocate prisoners if they are located in the inundation area.
  2. Assist local governments with prisoner transport.
- K. South Carolina National Guard (pending a Governor's State of Emergency Declaration).

1. Provide aviation support for Search and Rescue, reconnaissance, and security operations as requested.
  2. Provide assistance to ESF-16 (Emergency Traffic Management) for traffic management as requested.
  3. Provide assistance to ESF-13 (Law Enforcement) for establishing security operations as requested.
- L. Department of Social Services
- In conjunction with affected Counties, ARC and The Salvation Army, identify shelters and develop plans to support shelter and mass feeding operations.
- M. Budget and Control Board, Division of Procurement Services, Materials Management Office
- Develop plans to obtain bulk and bottled water to support the population without water service.
- N. The American Red Cross
- Support ESF-6 sheltering and mass feeding operations.
- O. The Salvation Army
- Support ESF-6 mass feeding operations.
- P. Federal
1. Federal Emergency Management Agency
    - a. Depending on the magnitude of the failure, deploy Incident Management Assist Teams (IMAT) and the Federal Incident Response Support Teams (FIRST).
    - b. Coordinate Temporary Housing for displaced persons needing shelter following 30 days. Temporary housing locations will be coordinated between SEOC and FEMA or Joint Field Office (JFO), if activated and the local Emergency Managers.
  2. Federal Energy Regulatory Commission
    - a. Regulates dams under their purview.
    - b. In accordance with FERC guidelines, ensure FERC dam owners develop EAPs and conduct drills and exercises on a scheduled or as warranted basis.

- c. Ensure EAPs are reviewed and updated per FERC guidelines.

**IX. ADMINISTRATION, LOGISTICS, AND FINANCE**

A. Administration and Finance

- 1. See the SCEOP Basic Plan.
- 2. Dam Owner
  - a. Dam owners are ultimately liable for damages resulting from a failure at one of their dams.
  - b. During a Federally declared disaster, dams may be eligible for reimbursement for some types of repairs through the FEMA Public Assistance program under Category D - Water Control Facilities.

B. Logistics. See Attachment A (South Carolina Logistics Plan) to the SCEOP Basic Plan.

**X. AUTHORITIES AND REFERENCES.** See Attachment C (Authorities and References) to the SCEOP Basic Plan.

**XI. ACRONYMS AND GLOSSARY.** See Attachment B (Acronyms and Glossary) to the SCEOP Basic Plan.

**XII. SUPPORTING PLANS AND DOCUMENTS.** The following Site Specific Plans have been completed and are kept under separate cover.

- A. Lake Murray Site Specific Plan December - 2004 (Revised) - Tab A (Lake Murray Site Specific Plan) to Appendix 4 (South Carolina Dam Failure Emergency Response Plan) to the SCEOP.
- B. Santee Dam Site Specific Plan, December - 2007 - Tab B (Santee Dam Site Specific Plan) to Appendix 4 (South Carolina Dam Failure Preparedness Emergency Plan) to the SCEOP.
- C. Wateree Dam Abbreviated Site Specific Plan - 2008 - Tab C (Wateree Dam Abbreviated Site Specific Plan) to Appendix 4 (South Carolina Dam Failure Emergency Response Plan) to the SCEOP.
- D. Pinopolis Dam Site Specific Plan, April, 2008 - Tab D (Pinopolis Dam Site Specific Plan) to Appendix 4 (South Carolina Dam Failure Emergency Response Plan) to the SCEOP.
- E. Cherokee Falls Abbreviated Site Specific Plan - 2008 - Tab E (Cherokee Falls Abbreviated Site Specific Plan) to Appendix 4 (South Carolina Dam Failure Emergency Response Plan) to the SCEOP.



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- F. Lake Secession Abbreviated Site Specific Plan - Tab F (Lake Secession Abbreviated Site Specific Plan) to Appendix 4 (South Carolina Dam Failure Emergency Response Plan) to the SCEOP.
- G. Buzzards Roost (Lake Greenwood) Abbreviated Site Specific Plan - Tab F (Buzzards Roost (Lake Greenwood) Abbreviated Site Specific Plan) to Appendix 4 (South Carolina Dam Failure Emergency Response Plan) to the SCEOP.

**Table 1 – List of FERC, USACE, BOR Dams In or Affecting South Carolina**

<b>OWNER</b>	<b>DAM NAME</b>	<b>LOCATION</b>
Duke Energy (some dams were formerly under Progress Energy)	Blewett Hydroelectric Plant	Pee Dee, NC
	Tillery Hydroelectric Plant	Mt. Gilead, NC
	Bad Creek Hydroelectric Station	Salem, SC
	Cowans Ford Hydroelectric Station	Huntersville, NC
	Fishing Creek Hydroelectric Station	Great Falls, SC
	Great Falls/Dearborn Hydroelectric Station	Great Falls, SC
	Jocassee Hydroelectric Station	Salem, SC
	Keowee Hydroelectric Station	Seneca, SC
	Mountain Island Hydroelectric Station	Mount Holly, NC
	Bridgewater Hydroelectric Station	Morganton, N)
	Ninety-Nine Islands Hydroelectric Station	Blacksburg, SC
	Oxford Hydroelectric Station	Hickory, NC
	Rocky Creek/Cedar Creek Hydroelectric Station	Great Falls, SC
	Wateree Hydroelectric Station	Camden, SC
Wylie Hydroelectric Station	Rock Hill, SC	
SC Electric & Gas	Fairfield Pumped Storage Facility	Jenkinsville, SC
	Parr Hydroelectric Plant	Jenkinsville, SC
	Saluda Hydroelectric Project (aka Lake Murray Dam, Dreher Shoals Dam)	Irmo and Lexington, SC
	Stevens Creek Hydroelectric Project	Martinez, GA
	Neal Shoals	Union, SC
City of Augusta	Augusta Canal	Augusta, GA
City of Greenwood	Lake Greenwood Hydroelectric (aka Buzzards Roost)	Dyson, SC

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<b>OWNER</b>	<b>DAM NAME</b>	<b>LOCATION</b>
ALCOA	Falls Dam	Badin, NC
	High Rock Dam	Badin, NC
	Narrows Dam	Badin, NC
	Tuckertown Dam	Badin, NC
	Yadkin Hydroelectric Project	Salisbury, NC to Badin NC (Yadkin River)
City of Abbeville	Lake Secession Dam	Abbeville, SC
Lockhart Power	Lockhart Hydroelectric Station	Lockhart, SC
Enel Green Power, North America	Upper Pelzer Hydroelectric	Pelzer, SC
	Cherokee Falls Hydroelectric Project	Blacksburg, SC
Southern Energy (North Georgia Hydro Project)	Tallulah Falls Dam	Tallulah Falls, GA
	Tugalo Dam	Toccoa, GA
	Yonah Dam	Toccoa, GA
Santee Cooper (SC Public Service Authority)	Santee Dam	Eadytown, SC
	Pinopolis Dam (West Dam)	Moncks Corner, SC
US National Park Service (BOR)	Star Fort Dam (Ninety-Six National Park)	Ninety-Six, SC
US Army Corps of Engineers - Savannah District	J. Strom Thurmond Dam	Clark Hill, SC
	Richard B. Russell Dam	Mt. Carmel, SC
	Hartwell Dam	Starr, SC
US Army Corps of Engineers - Charleston District	St. Stephen Dam	St. Stephen, SC