

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

I. INTRODUCTION

- A. As required by state and federal law, South Carolina's policy is to be prepared for any emergency or disaster, including dam failures. A dam is defined as an artificial barrier that can impound water, wastewater, or any liquid-borne material, for the purpose of storage or control of water.
- B. A dam failure is characterized by the uncontrolled release of impounded water.
 - 1. There are degrees of failure, from an uncontrolled release to complete breach of the dam. Any malfunction or abnormality outside the design assumptions and operating parameters that adversely affect a dam's primary function (which is to impound water and release it in a controlled manner) is considered a failure.
 - 2. Lesser degrees of failure can, cumulatively or if allowed to continue indefinitely, lead to or heighten the risk of a catastrophic failure. However, these types of failures may also be addressed, minimized, or halted through corrective and mitigative actions.

II. PURPOSE

- A. Prevent or minimize injury to people and damage to property resulting from a dam failure.
- B. Identify roles and responsibilities of county, state and federal agencies when preparing for and responding to the failure of a dam.
- C. Identify resources to assist those affected by a dam failure.
- D. Identify operational concepts unique to dam failure preparedness and response.

III. SCOPE

- A. The South Carolina Dam Failure Plan addresses operations to be conducted in coordination with and supplementary to the South Carolina Emergency Operations Plan (SCEOP) and addresses responsibilities, processes, and actions specific to dam failure events.
- B. Applies to all federally and state regulated dams within or affecting South Carolina.
- C. Individual dam Emergency Action Plans (EAP) and Site-Specific Plans (SSPs) will be used in conjunction with this plan, as applicable.

IV. FACTS AND ASSUMPTIONS

- A. Facts

1. There are 93 federally regulated dams and/or hydroelectric projects whose failure would affect South Carolina. (See Attachment A – Federally Regulated Dams Affecting South Carolina).
 - a. Federal regulatory agencies include the Federal Energy Regulatory Commission (FERC), the U.S. Army Corps of Engineers (USACE), and the National Park Service (NPS).
 - b. The [National Inventory of Dams \(NID\)](#) maintains an official count of projects.
2. The South Carolina Department of Environmental Services (SCDES) is the regulatory authority for state-regulated dams in South Carolina and is responsible for monitoring and inspections, coordinating with dam owners for the development of EAPs, issuing directives, and providing permits to erect new dams and permits for repairing, altering, or removing existing dams.
 - a. Directives may include emergency orders, an Inspection and Repair Order (IRO), Maintenance Order, and Administrative Fines in accordance with state SCDES dam regulations.
 - b. As of 2026, there are approximately 2,200 South Carolina dams that are regulated under State law by SCDES.
3. There are dams in North Carolina that, from failure or misoperation, can affect locations well inside South Carolina. The North Carolina Department of Environmental Quality (NCDEQ) is the regulatory authority for dams subject to North Carolina law.
4. Georgia and South Carolina share their border along three major watercourses: the Chattooga River, the Tugaloo River, and the Savannah River. While this generally limits hydrologic connectivity between the two states, meaning a dam failure in Georgia would not be expected to inundate areas of South Carolina far beyond the state line, there are important exceptions.
 - a. Several federally owned or regulated dams on the Tugaloo and Savannah Rivers physically straddle the state boundary and are listed as Georgia dams in the National Inventory of Dams, yet are in both states.
 - b. These include Tugaloo and Yonah Dams on the Tugaloo River, Lake Hartwell, Lake Russell, Lake Thurmond, Augusta Canal Diversion, Stevens Creek, and New Savannah Bluff Lock and Dam on the Savannah River.

- c. Because of their bi-state locations, failures at these shared dams could have significant impacts on adjacent areas in South Carolina.
 - d. The Chattooga River, designated as a national Wild and Scenic River, is undammed and does not present this concern.
5. Dam failures at federally regulated dams are categorized into Emergency Levels concerning the type and size of the failure and the flow and storage conditions upstream and downstream of the dam. State emergency classification levels generally follow the federal levels. (See the Table below for an overview of the federal classification levels).

Emergency Classification Levels for Dams Affecting South Carolina			
High Flow	Non-Failure	Potential Failure	Imminent Failure
Flooding is occurring on the river system, but there is no apparent threat to the integrity of the dam. This level is used by the dam owner to convey to outside agencies that downstream areas may be affected by the dam's release.	It is appropriate for an event at a dam that will not, by itself, lead to a dam failure, but requires investigation and notification of internal and/or external personnel.	Conditions are developing at the dam that could lead to a dam failure. Potential Failure should convey that time is available for analyses, decisions, and actions before the dam could fail. A failure may occur, but predetermined response actions may moderate or alleviate failure.	Time has run out, and the dam has failed, is failing, or is about to fail. Imminent failure typically involves a continuing and progressive loss of material from the dam. For the purposes of evacuation, emergency management authorities may assume the worst-case condition that failure has already occurred.
Source: <i>FEMA Publication 64 (Federal Guidelines for Dam Safety – Emergency Action Planning for Dams)</i> , July 2013. https://www.fema.gov/grants/mitigation/learn/dam-safety/federal-guidelines			

6. There are thousands of unregulated dams located in or that may impact South Carolina. Over 90% hold water for recreation or agriculture and are rarely used for flood control.

B. Assumptions

1. Dams may fail suddenly and without notice, or they may fail in a progressive or developing manner, allowing time for further analysis or decision-making.

- a. Depending on the size and severity of the dam failure, it is possible that there may not be time for a conference call during an imminent failure. It is possible that the South Carolina Emergency Management Division (SCEMD) will have to make an immediate recommendation to the Governor to evacuate zones, if designated, or activate this plan at any level.
 - b. During a potential failure, depending on the size and severity of the dam failure, state agencies and impacted counties will use the time to determine possible evacuation recommendations, if applicable, and prepare using existing plans, protocols, and predefined and coordinated procedures listed in emergency action plans or SSPs.
2. Dam failures could quickly destroy essential services and exceed local and state capacities.
3. Federal resources may not be available to provide significant lifesaving or life-sustaining capabilities until after the event.
4. Damage to transportation, communication, and other infrastructure systems could isolate individuals and/or communities within the dam failure inundation areas.
 - a. Affected primary and secondary roads may not be functional for extended periods of time.
 - b. Shelters in the impacted area may not be suitable for use. Sheltering operations will be established outside of the impacted area.
5. Mutual aid compacts and agreements will enable assistance in the areas of personnel, equipment, and logistics.
6. A dam failure could cause multi-county impacts to infrastructure.
7. Dam integrity may be threatened by any combination of natural or human-caused hazards.
 - a. The integrity of dams may be compromised by natural hazards, such as extreme rainfall and flooding, earthquake, wildfire, high wind, and ice, and from man-made hazards such as neglect, misoperation, terrorism, civil disorder, vandalism, or any combination of the above.
8. A single dam failure may produce cascading effects that cause the failure of one or more downstream dams.
9. A dam failure could result in injury, death, damage, loss of infrastructure, and property damage.

V. SITUATION

- A. Every county in South Carolina is susceptible to dam failures. Impacts may be caused by a dam failure within its boundaries, in an adjacent county, or in a neighboring state.
- B. Federal and State Dam Pre-Event Planning and Guidelines
 - 1. On-Site Planning Coordination for Federally Regulated Dam Owners
 - a. Detailed EAPs exist for federally regulated dams. These plans include roles and responsibilities, notification flowcharts, EAP activation conditions, notification and warning protocol, and downstream impacts (inundation maps).
 - b. Federally regulated dam owners are required to have EAPs updated annually.
 - c. Federally regulated dam owners are also required to train on their EAP and meet annually with EAP holders. SCEMD participates in these trainings and meetings.
 - d. All FERC-regulated High Hazard Dam owners/utilities are expected to provide Geographic Information System (GIS) shapefiles of the modeled inundation areas to state and local agencies to enable the state, counties, and municipalities to identify the affected infrastructure and population.
 - 2. On-Site Planning Coordination for State Regulated Dam Owners
 - a. EAPs are only required for high or significant hazard dams although all dam owners are encouraged to develop a plan. SCDES reviews the status of EAPs as part of its dam inspections. High Hazard dams are inspected every 2 years, and Significant Hazard dams are inspected every 3 years.
 - b. All State regulated dams have some degree of dam breach inundation mapping and associated GIS products available, but do not assess the full list of failure scenarios or potential hazards.
 - c. Some county and municipal governments that have state-regulated High Hazard dams in their jurisdictions maintain a high-hazard potential dam annex to their local hazard mitigation plan to identify inundation areas and potential measures to reduce risk associated with the dam(s).
- C. Supporting Agency Planning Coordination for Federally Regulated Dams (Site Specific Planning)

1. Developing SSPs is a coordinated effort between all emergency organizations and the dam owner to coordinate a consequence management strategy to evacuate and shelter populations being threatened.
2. SSPs detail impacts to infrastructure, emergency procedures for alert and notification, evacuation, mass care, and responder roles/responsibilities. Supporting appendices detail pre-scripted messages, shelter locations, and evacuation routes.
3. The SCEMD Dam Failure and Flood Program Manager coordinates off-site response planning with dam owners and impacted counties to develop a consequence management strategy. SSPs have been created for several FERC high hazard regulated dams.
4. Along with maps for planning scenarios, SCEMD creates essential services maps to determine effects to the following:
 - a. Transportation (e.g., interstates, highways, roads, rail lines and airports)
 - b. Communications (e.g., telephone lines, cell phone towers)
 - c. Public works and engineering (e.g., water treatment and wastewater facilities)
 - d. Firefighting (e.g., hydrants, tanks and refill locations, fire stations)
 - e. Mass Care (e.g., shelters and Medical Equipment Power Shelters (MEPS))
 - f. Health and medical facilities (e.g., regulated health care facilities to include hospitals and long-term care facilities, emergency medical service stations)
 - g. Cemeteries and graveyards
 - h. Hazardous materials (e.g., above ground and underground storage units, pipelines carrying hazardous materials and landfills)
 - i. Energy (e.g., electric facilities, distribution lines and generating stations)
 - j. Law enforcement facilities
 - k. Schools and Daycares
 - l. Military facilities
 - m. Large Employers

n. State and Federal Facilities

- D. In addition to other guidance, the Federal Emergency Management Agency (FEMA) provides guidelines (FEMA P-64) to encourage emergency action planning for dams to help save lives and reduce property damage. A one-page summary sheet providing guidance on what to include in EAPs across regulation levels can be found in Attachment D.
- E. FEMA recommends that federally regulated dam owners use two dam failure planning scenarios on the inundation maps - “Sunny Day Failure” and “Probable Maximum Flood” conditions.
1. A Sunny Day Failure is a dam failure that occurs during fair weather (i.e., non-hydrologic or non-precipitation). The water level in the reservoir is assumed to be at the “normal” pool at the time of failure.
 2. A Probable Maximum Flood failure occurs with rain and shows the greatest extent of inundation to be expected from failure of the dam occurring during passage of the flood waters (i.e., “rainy day” or hydrologic failures). The resulting inundation area will be the greatest extent of flooding that is theoretically possible.
- F. Historical Impacts
1. From October 1-5 of 2015, portions of the state recorded more than 20 inches of rainfall. The heavy rainfall resulted in widespread flash flooding as well as significant riverine flooding. 20 locations exceeded established flood stages. 50 state regulated dams failed. More than 1,500 water rescues were performed, and approximately 410 roads and bridges were closed. Nineteen fatalities were attributed to this event.
 2. Hurricane Matthew made landfall near McClellanville as a Category 1 hurricane on October 8, 2016. Areas in northeast and southern regions of the state received up to 17 inches of rainfall. The result was widespread flash flooding and an extended period of river flooding, especially in the Pee Dee region. Several rivers reached major flood stage, including the Little Pee Dee, Lumber and the Waccamaw rivers. 20 state regulated dams failed. Approximately \$122,000,000 in directly related Public Assistance damages were reported. Four fatalities were attributed to hazards from the hurricane.
 3. Hurricane Florence made landfall near Wrightsville Beach, North Carolina on September 14, 2018. The northeastern portion of South Carolina experienced 2 days of heavy rainfall. A station in Loris recorded 23.63 inches of rain, setting a new state record. Georgetown, Horry, Marlboro, Dillon, Marion, and Chesterfield counties all received rainfall of more than 15 inches. Portions of southeastern North Carolina received up to 35 inches

of rain, resulting in record flooding in the Pee Dee River basin. The Little Pee Dee, Lumber and Waccamaw rivers all reached new records in 2016, with Waccamaw being nearly 4 feet higher. There were 11 state regulated dams which failed. Approximately \$322,000,000 in directly related Public Assistance damages were reported. A total of nine fatalities were attributed to hazards from the hurricane.

4. On November 6-7, 2024, up to 14.6 inches of rain fell overnight in the Edisto River basin causing significant flooding in the area, including Orangeburg, Calhoun, and Bamberg counties. Small sections of each county received greater than 10 inches in a 24-hour period. Dams overtopped because of the increase in the water flow, which only expanded in the flooded areas. The North Fork of the Edisto River reached a historic crest of 15.34 ft and 10 state regulated dams failed. Approximately \$3,014,000 in Public Assistance-eligible costs and damage were reported.

VI. CONCEPT OF OPERATIONS

A. General

1. State and Federal agencies with coordinating, primary, and supporting responsibilities to the Emergency Support Functions (ESFs) participate in dam planning and training, including participation and attendance at scheduled exercises and meetings. Counties are encouraged to do the same.
2. SCEMD, SCDES, the State Emergency Response Team (SERT), affected County Emergency Management, dam owners, and other stakeholders coordinate for an organized response to address dam issues or failures.
3. State and County Emergency Managers in the potentially impacted areas should identify and be prepared to designate Alternate Emergency Operations Centers (AEOCs) should the primary EOCs become inaccessible.
4. County Emergency Management and first responders coordinate with dam owners and state agencies to provide county/local support and conduct public safety operations.
5. Either SCEMD (for federally regulated dams) or SCDES (state regulated dams,) will verify that the EAP notification chart has been followed with the dam owner and State and local emergency management organizations to ensure accuracy and consistency.
6. A credible terrorist threat may also require increased security and awareness during any failure scenario.

B. Concept of Operations for Federally Regulated Dams

1. Alerts and Notifications

- a. Once an emergency is confirmed at the dam, the dam owner should issue an emergency classification level and simultaneously initiate the notification process via the EAP notification flow chart for that emergency level.
- b. Upon receipt of the initial notification, the State Warning Point (SWP) will execute the Dam Failure Checklist that outlines procedures for verifying and confirming notifications of affected counties.
- c. Federally regulated dam owners are required to develop notification flowcharts to identify who is to be notified of a dam safety incident, by whom, and in what order. Specifically, the notification chart should include:
 - (1) Emergency level of the notification flowchart if more than one flowchart is required. (See Attachment C – Emergency Levels for Dams Affecting South Carolina).
 - (2) Individuals who will be notified and their contact information.
 - (3) Prioritization of notifications.
- d. Dam owners are required to maintain communications with the affected county EOCs and the State Emergency Operations Center for the duration of the emergency.
- e. For further information regarding alerts and notifications that apply to all dams, see Section VI, Paragraph D, Subsection 1.

2. Activation

- a. If a federally regulated dam operator has determined there is a potential failure, the SEOC will activate to OPCON 2 (Operational Condition, Level 2) (Enhanced Awareness), ensure counties are notified, and monitor the situation.
- b. If a federally regulated dam operator has determined there is an imminent failure, the SEOC will activate to OPCON 1 (Full Alert), ensure counties are notified, and begin immediate lifesaving action support with affected counties.
- c. In both a potential and imminent dam failure situation, a State of Emergency will be requested from the Governor as soon as SCEMD is notified of initial dam failure status.

- d. Counties: Based on initial information received, a county may:
 - (1) Coordinate with SCEMD and the dam owner.
 - (2) Activate their EOC.
 - (3) Close roads and initiate swift water rescue, as needed.
 - (4) Support evacuations out of the inundation area, and based on the SSP, if relevant.
 - (5) Open shelters or reception centers outside the evacuation area, as needed.
- 3. Public Alert and Messaging
 - a. Integrated Public Alert and Warning System (IPAWS)
 - (1) For federally regulated dams with pre-established evacuation zones that have signed a memorandum of understanding (MOU) with SCEMD, IPAWS is the primary means of alerting the public within the evacuation zones.
 - (2) A limited number of counties have begun establishing MOUs with state-regulated dam owners to utilize IPAWS as the primary means of alerting the public within the evacuation zones. Where such an MOU is in place, SCDES considers this sufficient to meet the emergency notification requirements under state law and regulations.
 - b. Public Education
 - (1) Federally regulated dam owners should develop a public information program to address potential hazards resulting from a dam failure, appropriate actions, self-protection, and reference state and local dam failure emergency response programs.
 - (2) Federally regulated dam owners should provide this information via pamphlets, brochures, company websites and social media. This information may include the following:
 - (a) Possible causes of dam failures and potential threats to people and property in the affected areas.
 - (b) Public alert and notification mechanisms.

- (c) Appropriate actions for self-protection.
 - (d) Sources of additional information prior to, during, and following a dam failure.
 - (e) If available, evacuation zones, routes, shelter locations, and personal protective measures.
 - (f) Information specifically relating to access and functional needs populations.
 - (3) See Annex 15 (Public Information) to the SCEOP.
 - (4) For examples of Emergency Alert System (EAS) Messages and News Releases, see site specific plans for selected federally regulated dams.
4. Evacuation Specific Elements for Federally Regulated Dams
- a. SSPs contain pre-established evacuation zones, established evacuation routes, and shelter or reception center locations for residents in each zone. For pre-established evacuation zones, the South Carolina Department of Public Safety (SCDPS)/ESF-16 (Emergency Traffic Management) and local law enforcement have pre-selected Traffic Control Points (TCP) along evacuation routes to restrict movement into the inundation area and ease congestion for those evacuating.
 - b. Evacuation zone information can be found in the following dam SSPs
 - (1) Saluda Hydroelectric (Lake Murray) (Annex 1)
 - (2) Santee (Annex 2)
 - (3) Lake Wateree (Annex 3)
 - (4) Pinnopolis (Annex 4)
 - (5) Cherokee Falls (Annex 5)
 - (6) Lake Secession (Annex 6)
 - (7) Lake Greenwood (Buzzards Roost) (Annex 7)
- C. Concept of Operations for State Regulated Dams
- 1. Alerts and Notifications

- a. Because of the nature of state-regulated dams, emergency notifications usually occur from a bystander or 911 call.
- b. After that initial alert, local emergency responders and SCDES may go and inspect the dam to determine the level of concern and conduct public safety actions as needed (road closures, notifications, etc.).
- c. Once an emergency is confirmed at the dam, the owner should issue an emergency classification level, based on their plan, and simultaneously initiate the notification process via the EAP notification flowchart for that emergency level. (See Attachment C – Emergency Levels for Dams Affecting South Carolina).
- d. Dam owners regulated by SCDES will work very closely with the agency to determine next actions and assess the integrity of the dam.
- e. Upon the alert of a failure, the SWP will execute the Dam Failure Checklist that outlines procedures for verifying and confirming notification of affected counties, if not already done so by the dam owner or SCDES.
- f. Counties: Based on initial information received, a county may:
 - (1) Send agency(ies) to the scene to evaluate
 - (2) Activate their EOC
 - (3) Close roads and initiate swift water rescue, if needed
 - (4) Initiate evacuations if circumstances warrant
 - (5) Open shelters or reception shelters, as needed
- g. Responsibility lies with the dam owner to maintain and distribute information to those downstream.
- h. For further information regarding alerts and notifications that are applicable to all dams, see Section VI, Paragraph D, Subsection 1 of this plan.

2. Activation

After receiving notification of either a Potential or Imminent Dam Failure (Attachment C-Emergency Classification Levels) and based on the needs determined by local emergency management, SCEMD may support in a limited capacity at first and increase support as the situation escalates and local resources are overwhelmed.

3. Public Alert and Messaging

- a. The local dam owner is responsible for notifying those downstream of potential or imminent failure and impacts.
- b. Local emergency response organizations may activate IPAWS messages to notify the surrounding community of a failure or a potential failure. Public protective actions could be communicated to residents via IPAWS when deemed appropriate. See Section VI, Paragraph D, Subsection 1(c) for more information.
- c. SCDES communicates extensively with the dam owner throughout all stages to ensure they are maintaining and monitoring their dam to reduce failure conditions and impacts.

D. All Dams

1. Public Alert and Notification

a. Siren Systems

- (1) Some regulated dams in South Carolina use siren systems to alert the populace to turn on radios/televisions and listen to EAS messages.
- (2) These dam owners must test their sirens, according to the dam owner's regulatory procedures, to ensure functionality.
- (3) Dam owners, in coordination with the County Emergency Management and/or SCEMD/SEOC, may activate their sirens to warn portions of, or all downstream residents.
- (4) Maps of siren locations are in the relevant dam EAPs.

b. Automated Telephonic Notification System

Some counties have systems to conduct automated telephonic notifications. Notification will be prioritized (or phased) based on threat (such as speed flow of water).

c. Integrated Public Alert and Warning System (IPAWS)

- (1) Protective actions will be communicated to residents by SCEMD at the request of local authorities, or in the event of cross-jurisdictional alerts and warnings, via IPAWS when deemed appropriate and approved by the SCEMD Director or the Director's designee.

- (2) IPAWS messages will be coordinated through Emergency Support Function 15 (ESF-15) with the State Warning Point utilizing existing plans and procedures for the system (South Carolina IPAWS Plan, ESF-15 SOP, State Warning Point SOP).
 - (3) IPAWS can activate Wireless Emergency Alerts (WEA), EAS, and NOAA Weather Radios (NWRs).
- d. Tone Alert Radio Notifications

Once notified by a dam owner, emergency manager, or responder that deteriorating conditions are observed at the dam, the National Weather Service (NWS) may activate tone alert radios and issue either a Flash Flood Watch or Flash Flood Warning for the affected areas, as appropriate.
- e. Counties, municipalities, or first responders will use door-to-door alert notifications as a backup, as required.

2. Evacuation

- a. Evacuation may be needed for state regulated or federally regulated dams.
 - (1) For federally regulated dams with evacuation zones or dams that pose a threat to multiple jurisdictions the Governor, acting under the authority of Section 25-1-440, SC Code of Laws, may order and compel all citizens to leave the affected area.
 - (2) For dams that pose a threat to single jurisdiction, local officials or the Governor may recommend those citizens threatened leave the affected area.
 - (3) Refer to Section VII (Concept of Operations), Paragraph H (Evacuations and Shelter-in-Place) of the SCEOP Base Plan.
- b. Evacuation Zones
 - (1) Evacuation zones are those areas that need to be evacuated to protect residents at risk from flooding because of dam failure.
 - (2) Parameters to differentiate these zones are:
 - (a) Easily describable to the public over radio and television

- (b) Based upon easily identifiable roadways or natural features for boundary identification
 - (c) Generally based on the areas of inundation
- (3) Not all dams have pre-established evacuation zones and zones may be determined at the time of the incident based on expected inundation models and needs.
- c. Special Evacuation Requirements
 - (1) Affected counties are responsible for identifying the need and providing transportation to evacuees lacking personal transportation or who require functional and access needs transportation.
 - (2) Priority of evacuation assistance will be given to facilities and populations located within or nearest to the inundation areas.
 - (3) Consideration will be given to evacuating schools as well as functional and access needs populations in advance of a general population evacuation as time allows.
 - (4) Licensed Healthcare facilities are required to develop by contact and consultation with their county EMA a suitable written plan for actions to be taken in the event of a disaster and/or emergency evacuation and implement the plan for actions at the time of need.
 - (5) State and county corrections facilities will develop and coordinate plans with local government to relocate inmates.
- d. Re-Entry. See Section VII (Concept of Operations), Paragraph I (Access Control and Reentry Operations) of the SCEOP Base Plan.
- e. Sheltering
 - (1) In the event of dam failure evacuation, the affected and neighboring counties will coordinate with ESF-6 (Mass Care) to open shelters outside the inundation area.
 - (2) Sheltering procedures
 - (a) Counties, in coordination with ESF-6, identify the sheltering requirements and the locations outside of the affected areas, as required.

- (b) ESF-6 will open MEPS outside of the affected area, as required.
- (c) The Governor or appropriate local authority may order county schools located in the impacted or neighboring counties to be closed and utilized as shelters.
- (d) ESF-11 (Food Services) partners will manage feeding support to the sheltering operations.
- (e) Neighboring counties may need to shelter citizens from the affected county.
- (f) While specific dam failure shelters may not have been identified, any current pre-identified shelters may be utilized.

VII. DISASTER INTELLIGENCE

- A. See Section VIII (Disaster Intelligence and Communications) of the SCEOP Base Plan.
- B. Lifeline Sector Analysis

The table below lists possible impacts to the state's lifeline sectors associated with dam failure. While not all-inclusive, this list assists the SERT's ability to respond effectively by proactively identifying possible areas of concern before impacts occur.

Lifeline	Scope of Possible Impacts
	• Inundated areas may be difficult to access, hindering lifesaving missions • Operational facilities and roadways may be inaccessible • Evacuation support may be needed to move individuals out of flooded areas
	• Citizens evacuated from inundated areas may require emergency shelter • Food supplies may be depleted in areas isolated by floodwaters • Crops and livestock could be affected by high water or prolonged flooding

	• Medical facilities in the inundation area may see damage to structures and equipment as well as reduced accessibility • Access issues and transportation disruptions may result in delayed supplies, staffing shortages and difficulties moving patients • Evacuations could lead to injuries
	• Fuel stations and transmission substations may be damaged or inoperable • Hydro power generation could be stopped entirely if the dam is damaged badly enough • Fuel pipelines could be damaged or need to stop service due to flooding
	• Telecommunications and broadband equipment could be damaged by floodwater inundation which could result in a disruption of communications
	• Roadways, bridges, railroads, port, and airport facilities in and near flooded areas may see hazardous conditions, damage, and disruptions in service
	• Floodwater inundation could result in release of hazardous materials • Limited access to roadways and inundated areas may delay responses
	• Water treatment infrastructure could be damaged, leading to decline in quality of potable water • Drinking water production may be disrupted or lost completely if the dam served as a drinking water reservoir

VIII. ORGANIZATION AND ASSIGNMENT OF RESPONSIBILITIES

- A. See Section IX (Organization and Assignment of Responsibilities) of the SCEOP Base Plan for the general roles and responsibilities to all hazards, for State and Federal agencies in preparation, response, and recovery from disaster impacting the State.
- B. Regulated Dam Owners
 1. All regulated dam owners should:

- a. Ensure compliance with regulatory guidance.
 - b. Develop, coordinate, test, and implement dam failure EAPs.
 - c. Provide EAPs to affected Local, County, and State Emergency Management/Environmental Services, first responders, and all other stakeholders. For state regulated dams, EAPs will go to SCDES. For federally regulated dams, EAPs will go to SCEMD.
 - d. Ensure physical and cyber security at dams where applicable.
 - e. Inspect dams as required by regulatory guidance.
 - f. Initiate failure classification levels as detailed in respective EAP.
 - g. Secure the dam as soon as possible when an issue is identified.
 - h. Continue to monitor dam conditions until conditions at the dam improve or return to “non-failure” conditions and report status to the affected counties and SCEMD (federally regulated dams) or SCDES (state regulated dams).
 - i. Conduct evaluations of dam failure related damage and determine ways to mitigate future failure.
2. Additionally, federally regulated dam owners:
- a. Participate in the development and update of SSPs for dams as required.
 - b. Maintain personnel and equipment in a state of readiness.
 - c. If applicable, install, operate, maintain, and periodically test siren system.
 - d. Provide timely information and recommendations to SCEMD and affected counties during both “Imminent Failure” and “Potential Failure” classification level events.
 - e. Ensure SCEMD, affected counties and local NWS office are immediately notified if deteriorating conditions are detected or likely.
 - f. Provide authorized spokesperson to support public information activities at the Joint Information Center (JIC).
 - g. Coordinate with counties and ESF-15 (Public Information) to develop a public information program (i.e., pre-scripted news releases, public information materials).

- h. Prepare and disseminate public information through appropriate news media and in coordination with ESF-15.

C. South Carolina Emergency Management Division

- 1. Along with SCDES, coordinate with the following agencies to monitor current and forecasted rain events that may lead to dam failures:
 - a. NWS
 - b. Southeast River Forecast Center (SERFC)
 - c. US Geological Survey (USGS)
 - d. SC Department of Natural Resources (SCDNR) Climatology Office and Flood Mitigation Program
- 2. Monitor potential threat conditions (extreme rainfall, storms, etc.) affecting dams in South Carolina.
- 3. Assist affected counties and federally regulated dam owners with developing SSPs.
- 4. Analyze dam inundation maps to determine the threat to life and property in the inundation area.
- 5. In coordination with the affected counties, develop evacuation zones based on the inundation maps.
- 6. Assist dam owners and other agencies with dam safety training, public information, and education.
- 7. Participate in dam related exercises.
- 8. Advise the Governor, state agencies, local government officials, and, if necessary, federal agencies of the dam failure impact.
- 9. Coordinate with county, dam owner or representatives, SCDES, and NWS to release consistent emergency information through ESF-15.
- 10. Deploy resources, as requested, to affected areas.
- 11. Maintain and review copies of available dam EAPs and ensure consistency with state and local protocol.
- 12. Maintain, update, and distribute this plan on a biennial basis.

- D. Emergency Support Functions. Coordinating agencies will conduct a biennial review of their ESF-specific dam failure responsibilities with primary and supporting agencies.

1. ESF-1 (Transportation):

a. South Carolina Department of Transportation (SCDOT)
(Coordinating Agency)

- (1) Coordinate with ESF-16 to support evacuation operations.
- (2) Evaluate impacted roads and bridges.
- (3) Determine routes around the inundation area and coordinate with SCDPS/ESF-16 to establish roadblocks and TCPs or Diversion Points to facilitate traffic flow.
- (4) Provide transportation support for the receiving of survivors at areas of refuge or collection points designated with ESF-6 and ESF-9 for the onward movement of evacuees and survivors.
- (5) Coordinate with ESF-9, for Helicopter Aquatic Rescue Team (HART) and other SAR rotary and fixed wing platforms to support SAR.
- (6) Establish Air Coordination Group for coordination and management of aerial operations; coordinate as required with ESF-4, ESF-13, and ESF-19 for aviation assets.

2. ESF-2 (Communication):

a. South Carolina Department of Administration, Office of
Technology and Information Services (Coordinating Agency)

- (1) As required, coordinate alternate communication systems to augment damaged or inoperative systems.
- (2) Gather post-impact communication damage assessment information (including telephone/cellular, broadcast, commercial radio stations, and cyber related outages) for integration into recovery plans.

3. ESF-3 (Public Works and Engineering):

a. South Carolina National Guard (Coordinating Agency)

- (1) Coordinate with USACE to provide augmented engineering

support and flood fight subject matter experts to advise on protective actions.

- (2) Lead coordination for the distribution of sandbags and specialized flood fight equipment from the USACE to assist in the protection of essential services.
- (3) Participate in USACE Hydrology Coordination Calls to synchronize modeling and assessments information.

b. South Carolina Rural Water Association

- (1) Coordinate with SCDES to provide technical support for water and wastewater facilities and dams as required.
- (2) Coordinate the identification of alternative water sources in areas where drinking water and infrastructure are impacted.

4. ESF-6 (Mass Care):

a. South Carolina Department of Social Services (Coordinating Agency)

- (1) Coordinate with affected county emergency managers and the American Red Cross to identify shelters to support evacuations from dam inundation areas.
- (2) Assist with reunification efforts as required.
- (3) Coordinate the receiving of survivors at areas of refuge or collection points designated with ESF-1 and ESF-9 for the onward movement of evacuees and survivors.
- (4) Coordinate with ESF-18 as needed to determine the appropriate distribution method of emergency relief supplies (to include, but not limited to, water, non-perishable food, paper products, household cleaning supplies, infant care items, and personal hygiene products) in areas where commercial trade is inoperative/insufficient to meet emergency needs.
- (5) Coordinate with ESF-14 as needed to support the implementation of the SC Multi-Agency Shelter Transition Plan (MAST) through the coordination of voluntary agency resources to address the unmet needs of evacuated individuals.

5. ESF-8 (Health and Medical Services):

- a. South Carolina Department of Public Health (Coordinating Agency)

Identify licensed healthcare facilities in the inundation area and evacuation zones, review evacuation plans and verify notification mechanisms.
 - b. South Carolina Coroners Association

Coordinate additional fatality management resources to affected county coroner(s) as needed.
6. ESF-9 (Search and Rescue):
- a. South Carolina Department of Labor, Licensing, and Regulation
 - (1) Coordinate activation of the South Carolina Emergency Response Task Force (SCERTF) Incident Support Team (IST) for potential deployment to affected areas for all-hazard assessment, response, and incident support, as required.
 - (2) Request swift water assets through the SC Firefighter Mobilization process and stage at the State Fire Academy or designated pre-staging locations until assessment and resource requirements are determined. Coordinate deployment of assets, as required.
 - (3) Coordinate with SCDNR and other partners on availability of water rescue assets.
 - (4) In coordination with SCEMD Logistics, request the deployment of additional swift water rescue and search and rescue (SAR) capabilities through the Emergency Management Assistance Compact (EMAC) as required.
 - (5) Integrate federal SAR assets into the operational response schemes.
 - (6) Coordinate the hand-off of survivors at areas of refuge or collection points designated and coordinated by ESF-6 local authorities for the onward movement of evacuees and survivors.
 - (7) Provide communications, heavy equipment, and personnel to support firefighting and SAR efforts as requested.

- (8) Coordinate with ESF-1, Air Coordination Group, for Helicopter Aquatic Rescue Team (HART) and other SAR rotary and fixed wing platforms to support SAR.
- 7. ESF-10 (Environmental and Hazardous Materials Operations)
 - a. South Carolina Department of Environmental Services (Coordinating Agency)
 - (1) Provide County Emergency Managers state regulated dam Emergency Action Plans for their respective counties.
 - (2) Inspect SCDES regulated dams on the following schedule:
 - (a) “High Hazard” dams – Every other year
 - (b) “Significant Hazard” dams - Every three (3) years
 - (c) Although “Low Hazard” dams are not required to maintain an EAP and are not inspected, SCDES will perform a classification evaluation of these dams every five (5) years to determine any change in their hazard level.
 - (3) Conduct statewide dam safety public information and education.
 - (4) Coordinate with federal, state, and local agencies to assist in supporting dam safety training.
 - (5) Provide SCDES Dam Safety representative to the SEOC for activations, as requested.
 - (6) In coordination with SCEMD and NWS, monitor rainfall forecasts and, when forecast conditions warrant, message owners of state-regulated dams to alert them of the possibility of extreme rainfall and request they perform pre-storm activities including checking condition of dams, ensuring proper functioning of spillways, lowering water levels, if possible and safe to do so, and reviewing Emergency Action Plans.
 - (7) Following a state-regulated dam failure:
 - (a) Assess damage and determine mitigation methods to improve dam
 - (b) Provide permits to erect new dams

- (c) Provide permits for repairing, altering, or removing existing dams
 - (8) Issue directives to dam owners, including Emergency Orders (EOs), Inspection and Repair Orders (IROs), and Maintenance Orders (MOs), and assess administrative fines and/or penalties in accordance with the SC Dams and Reservoirs Safety Act and Regulations.
 - (9) Identify hazardous waste facilities in the inundation area.
 - (10) Develop system to notify affected regulated hazardous materials treatment, storage, and disposal facilities in the affected inundation area.
- 8. ESF-12 (Energy):
 - a. South Carolina Office of Regulatory Staff (Coordinating Agency)
 - (1) Coordinate with utilities for restoration of generation facilities and transmission of electricity to damaged and affected areas.
 - (2) Coordinate with ESF-3 (Public Works and Engineering) as reports of utility company damage assessments of natural gas pipelines and facilities are received.
- 9. ESF-13 (Law Enforcement):
 - a. South Carolina Law Enforcement Division (SLED) (Coordinating Agency)
 - (1) Assist local law enforcement authorities with security in the inundated areas as requested.
 - (2) Provide or coordinate specialized support assets to include:
 - (a) Forensic support
 - (b) Investigative and crime scene services should the failure be determined to be intentional (terrorism)
 - b. South Carolina Department of Natural Resources (SCDNR)
 - (1) Coordinate with ESF-16 to develop plans to clear the upstream areas and downstream waterways affected by the inundation area.

- (2) Patrol water bodies and recreational areas to prevent access, as needed, downstream from the dam.
- (3) Provide SCDNR hydrologists to support the Disaster Intelligence Group (DIG) in the SEOC.
- (4) SCDNR, as part of ESF-16 and ESF-13, will coordinate the clearance of waterways/boat landings and prevent unauthorized waterway access to areas downstream and upstream from the dam or the already secured area as needed.

11. ESF-14 (Initial Recovery and Mitigation)

- a. South Carolina Emergency Management Division (Coordinating Agency)
 - (1) Support local damage assessment. Compile and analyze damage assessment and cost data to support recovery planning, prioritization of needs, and disaster assistance requests
 - (2) Monitor essential community lifelines to identify and prioritize recovery, mitigation, and potential assistance needs.
 - (3) Identify sources for recovery assistance and prepare requests for federal assistance if warranted.
 - (4) Coordinate with ESF-6 as needed to support the implementation of the SC Multi-Agency Shelter Transition (MAST) Plan through coordination of voluntary agency resources to address the needs of evacuated or displaced individuals.
 - (5) Coordinate recovery operations and support transition from response activities to recovery coordination processes under the Recovery Plan (Appendix 6).

12. ESF-15 (Public Information)

- a. South Carolina Emergency Management Division (Coordinating Agency)
 - (1) See Annex 15 (Public Information) to the SCEOP for information.

- (2) At a minimum, SCEMD, SCDES, SCDPS, the affected counties, and dam owners with the resources to do so, will provide public information personnel to staff the JIC.
- 13. ESF-16 (Traffic Management):
 - a. South Carolina Department of Public Safety (Coordinating Agency)
 - (1) Coordinate with ESF-13 to develop plans to clear upstream lakes and downstream waterways in inundation areas.
 - (2) Coordinate with the Air Coordination Group for aviation support for evacuation (including public address system, rescue, and security operations).
 - (3) In conjunction with county law enforcement authorities, support evacuations and coordinate traffic control during the dam failure event.
 - (4) Coordinate with local law enforcement authorities to assist with coordinating ingress and egress points and controlling access points based on evacuation and traffic management plans.
 - (5) County and local law enforcement coordinating with the SCDPS/ESF-16 and other law enforcement agencies will manage traffic evacuation activities.
 - (6) In most cases, diversion routing will be utilized in counties outside of inundated areas and will be maintained for the event's duration.
- 14. ESF-17 (Agriculture and Animals)
 - a. Clemson University Livestock and Poultry Health (Coordinating Agency)
 - (1) Coordinate potential resources for technical assistance for aquatic rescue of livestock, equines and other animals as required.
 - (2) Mitigate risks to essential services related to agribusiness, food and public health by coordinating messaging and resources.
 - (3) Coordinate resources to support response activities for impacted essential services to minimize effects on the

economy and public health related to food and agriculture, support critical supply chains.

- (4) Coordinate response to and reporting for contamination of the SC food supply from flood waters. Embargo impacted food as needed.
- (5) Coordinate and report damage assessments of agribusiness and animal business

15. ESF-19 (Military Support):

a. South Carolina National Guard (Coordinating Agency)

- (1) Coordinate with ESF-1 to support route clearance and debris push operations.
- (2) Provide aviation support for search and rescue, reconnaissance, and security operations in coordination with ESF-1/Air Coordination Group, etc. as requested.
- (3) Assist ESF-16 with traffic management as requested.
- (4) Assist ESF-13 with security operations as requested.

16. ESF-24 (Business and Industry):

a. South Carolina Department of Commerce (Coordinating Agency)

- (1) Provide the latest disaster information to the SC business community, so they can make informed decisions regarding their businesses and potential impacts.
- (2) Assess business impacts in impacted communities because of dam failure.
- (3) Leverage private sector partners to assist with unmet needs.

IX. ADMINISTRATION, FINANCE AND LOGISTICS

- A. Administration and Finance. See Annex 7 (Finance and Administration) to the SCEOP Base Plan.
- B. Logistics. See Attachment A (SC Logistics Plan) to the SCEOP Base Plan.

X. CONTINUITY OF GOVERNMENT (COG)

See Section VII (Concept of Operations), Paragraph L (Continuity of Government) to the SCEOP Base Plan.

XI. CONTINUITY OF OPERATIONS (COOP)

See Section VII (Concept of Operations), Paragraph M (Continuity of Operations) to the SCEOP Base Plan.

XII. PLAN DEVELOPMENT AND MAINTENANCE

SCEMD and designated stakeholders and partners identified in this plan will review this Appendix on a biennial basis and update/revise as necessary.

XIII. AUTHORITIES AND REFERENCES

A. State

1. See Attachment C (Authorities and References) to the SCEOP Base Plan
2. SC Dams and Reservoirs Safety Act, SC Code 49-11-10, *et seq.*
3. Code of Regulations, Chapter 72, parts 72-1 through 72-9

XIV. ACRONYMS AND GLOSSARY.

A. [FEMA P-148, Federal Guidelines for Dam Safety, Glossary of Terms](#)

B. See Attachment B (Acronyms and Glossary) to the SCEOP Base Plan

XV. SUPPORTING PLANS AND DOCUMENTS.

Attachment A – Federally Regulated Dams Affecting South Carolina

Attachment B – Hazard Potential Classification Systems for Dams Affecting South Carolina

Attachment C – Emergency Levels for Dams Affecting South Carolina

Attachment D – Planning Exercise Requirements from Regulatory Agencies

XVI. SITE SPECIFIC PLAN LISTING (Under separate cover)

- A. Lake Murray Site Specific Plan, December 2004 – Annex 1 (Lake Murray Site Specific Plan) to Appendix 4 (South Carolina Dam Failure Plan) to the SCEOP Base Plan.
- B. Santee Dam Site Specific Plan, March 2026 - Annex 2 (Santee Dam Site Specific Plan) to Appendix 4 (South Carolina Dam Failure Plan) to the SCEOP Base Plan.
- C. Wateree Dam Abbreviated Site-Specific Plan, 2008 - Annex 3 (Wateree Dam Abbreviated Site-Specific Plan) to Appendix 4 (South Carolina Dam Failure Plan) to the SCEOP Base Plan.

- D. Pinnopolis Dam Site Specific Plan, April 2008 - Annex 4 (Pinnopolis Dam Site Specific Plan) to Appendix 4 (South Carolina Dam Failure Plan) to the SCEOP Base Plan.
- E. Cherokee Falls Abbreviated Site-Specific Plan, April 2009 - Annex 5 (Cherokee Falls Abbreviated Site-Specific Plan) to Appendix 4 (South Carolina Dam Failure Plan) to the SCEOP Base Plan.
- F. Lake Secession Abbreviated Site-Specific Plan, March 2010 - Annex 6 (Lake Secession Abbreviated Site-Specific Plan) to Appendix 4 (South Carolina Dam Failure Plan) to the SCEOP Base Plan.
- G. Buzzards Roost (Lake Greenwood) Abbreviated Site-Specific Plan, April 2010 - Annex 7 (Buzzards Roost (Lake Greenwood) Abbreviated Site-Specific Plan) to Appendix 4 (South Carolina Dam Failure Plan) to the SCEOP Base Plan.

Attachment A – Federally Regulated Dams Affecting South Carolina

Any physical EAP copies held by EMD are stored in the Dam Failure and Flood Program Manager's office

<u>Owner</u>	<u>Name of Dam</u>	<u>Location of Dam</u>	<u>Counties/NWS stations affected</u>	<u>Digital or Physical EAP</u>
City of Abbeville, SC	Lake Secession (Rocky River)	Abbeville County	Abbeville County GSP NWS	Physical
City of Augusta, GA	Augusta Canal	Richmond County, Georgia	Edgefield County Aiken County Columbia NWS	Both
City of Columbia, SC/Lockhart	Columbia Canal	Richland County	Richland County Columbia NWS	Both
Dominion Energy	Fairfield Pumped Storage Facility	Fairfield County	Newberry County Fairfield County Lexington County Richland County Columbia NWS	Physical
Dominion Energy	Parr Hydroelectric Plant	Fairfield County	Newberry County Fairfield County Lexington County Richland County Columbia NWS	Physical
Dominion Energy	Saluda Hydroelectric Facility (Lake Murry Dam)	Lexington County	Lexington County Richland County Calhoun County Columbia NWS	Physical
Dominion Energy	Stevens Creek Hydroelectric Facility	Edgefield County	Edgefield County Aiken County Columbia NWS	Physical
Duke Energy	Blewett Hydro Station	Anson County, North Carolina	Marlboro County Chesterfield County Columbia NWS	Both
Duke Energy	Bad Creek Hydro Station	Oconee County	Oconee County GSP NWS	Both
Duke Energy	Bridgewater Hydro Station	Burke County, NC	York County Chester County Lancaster County Fairfield County	Both

			Kershaw County Richland County Sumter County GSP NWS Columbia NWS	
Duke Energy	Cowans Ford Hydro Station	Mecklenburg County, North Carolina	York County Lancaster County Chester County Fairfield County Kershaw County Richland County Sumter County Calhoun County Clarendon County Orangeburg County Columbia NWS GSP NWS	Both
Duke Energy	Fishing Creek Hydro Station	Lancaster County	Lancaster County Chester County Fairfield County Kershaw County Columbia NWS GSP NWS	Both
Duke Energy	Gaston Shoals	Cherokee County	Cherokee County York County Union County GSP NWS Columbia NWS	Both
Duke Energy	Great Falls Hydro Station (Dearborn)	Chester County	Lancaster County Chester County Fairfield County Kershaw County Columbia NWS GSP NWS	Both
Duke Energy	Jocassee Hydro Station	Oconee and Pickens Counties	Pickens County Oconee County Anderson County Abbeville County McCormick County Edgefield County Aiken County GSP NWS Columbia NWS	Both
Duke Energy	Keowee Hydro Station	Oconee and Pickens Counties	Pickens County Oconee County Anderson County Abbeville County	Both

			McCormick County Edgefield County Aiken County Barnwell County Allendale County GSP NWS Columbia NWS	
Duke Energy	Mountain Island Hydro Station	Gaston County, North Carolina	York County Lancaster County Chester County Fairfield County Kershaw County Columbia NWS GSP NWS	Both
Duke Energy	Ninety-Nine Islands Hydro	Cherokee County	Cherokee County York County Union County GSP NWS Columbia NWS	Both
Duke Energy	Oxford Hydro Station	Alexander County, North Carolina	York County Lancaster County Chester County Columbia NWS GSP NWS	Both
Duke Energy	Rocky Creek/Cedar Creek Hydro	Fairfield County	Lancaster County Fairfield County Kershaw County Columbia NWS GSP NWS	Both
Duke Energy	Tillery Hydro Station	Stanly County, North Carolina	Marlboro County Chesterfield County Wilmington NWS Columbia NWS	Both
Duke Energy	Wateree Hydro Station	Kershaw County	Kershaw County Richland County Sumter County Columbia NWS	Both
Duke Energy	Wylie Hydro Station	York County	York County Lancaster County Chester County Fairfield County Kershaw County Richland County Sumter County Calhoun County Clarendon County	Both

			Orangeburg County	
			Columbia NWS	
Eagle Creek Renewable Energy	Falls Dam High Rock Dam Narrows Dam Tuckertown Dam	Rowan County, North Carolina	Chesterfield County Marlboro County Darlington County Columbia NWS Wilmington NWS	Physical
Georgia Power	North Georgia Hydroelectric Project	Rabun County, Georgia	Chesterfield County Marlboro County Darlington County Columbia NWS Wilmington NWS	Physical
Greenwood County	Buzzard's Roost (Lake Greenwood Dam)	Greenwood County	Newberry County Saluda County Greenwood County Lexington County Richland County Columbia NWS GSP NWS	Physical
Cherokee Falls Hydroelectric Project	Cherokee Falls Hydroelectric Project	Cherokee County	Cherokee County GSP NWS	Physical
Lockhart Power Company	Lockhart Hydro Station	Union County	Union County GSP NWS	Physical
Consolidated Hydro Southeast, LLC	Lower Pelzer	Greenville County	Anderson County Greenville County GSP NWS	Both
Consolidated Hydro Southeast, LLC	Upper Pelzer	Anderson County	Anderson County Greenville County GSP NWS	Both
Consolidated Hydro Southeast, LLC	Piedmont	Anderson County	Anderson County Greenville County GSP NWS	Both
Consolidated Hydro Southeast, LLC	Ware Shoals	Greenwood County	Laurens County Greenwood County GSP NWS	Both
Santee Cooper	Pinnopolis Dam	Berkeley County	Berkeley County Charleston County Charleston NWS	Both
Santee Cooper	Santee Dam	Berkeley County	Berkeley County Clarendon County	Both

			Williamsburg County Georgetown County Charleston County Charleston NWS Columbia NWS Wilmington NWS	
National Parks Service (Ninety-Six National Historic Site)	Star Fort Dam	Greenwood County	Greenwood County GSP NWS	Physical
U.S. Army Corps of Engineers (Charleston District)	St. Stephen Hydro Facility	Berkeley County	Berkeley County Williamsburg County Georgetown County Charleston County Charleston NWS	Physical
U.S. Army Corps of Engineers (Savannah District)	Clemson Upper/Lower Diversion Dams	Oconee County	Pickens County Oconee County GSP NWS	Physical
U.S. Army Corps of Engineers (Savannah District)	Hartwell Dam	Anderson County, South Carolina and Hart County, Georgia	Anderson County Abbeville County GSP NWS	Physical
U.S. Army Corps of Engineers (Savannah District)	J. Strom Thurmond Dam	McCormick County, South Carolina and Columbia County, Georgia	McCormick County Edgefield County Aiken County Barnwell County Allendale County Hampton County Jasper County Columbia NWS	Physical
U.S. Army Corps of Engineers (Savannah District)	New Savannah Bluff Lock and Dam	Aiken County, South Carolina and Richmond County, Georgia	Aiken County Columbia NWS	Physical
U.S. Army Corps of Engineers (Savannah District)	Richard B. Russell Dam	Abbeville County, South Carolina and Elbert County, Georgia	Abbeville County McCormick County GSP NWS	Physical

Attachment B – Hazard Potential Classification Systems for Dams Affecting South Carolina

I. FERC

Hazard Potential Classification	Loss of Human Life	Economic, Environmental, Lifeline Losses
High	Probable, one or more expected	Yes (but not necessary for this classification)
Significant	None Expected	Yes
Low	None Expected	Low and generally limited to the owner

II. SCDES

- A. **High Hazard** – Dams located where failure will likely cause loss of life or serious damage to home(s), industrial and commercial facilities, important public utilities, main highway(s) or railroads.
- B. **Significant Hazard** – Dams located where failure will not likely cause loss of life but may damage home(s), industrial and commercial facilities, secondary highway(s) or railroad(s) or cause interruption of use or service of relatively important public utilities.
- C. **Low Hazard** - Dams located where failure may cause minimal property damage to others. Loss of life is not expected.

III. USACE

- A. Dam Safety Action Classification (DSAC) Class I (Very High Urgency) – Dams where progression toward failure is confirmed to be taking place under normal operations and the dam is almost certain to fail under normal operations within a time frame from immediately to within a few years without intervention; or the combination of life or economic consequences with probability of failure is extremely high.
- B. DSAC Class II (High Urgency) – Dams where failure could begin during normal operations or be initiated as the consequence of an event. The likelihood of failure from one of these occurrences, prior to remediation, is too high to assure public safety; or the combination of life or economic consequences with probability of failure is very high.

- C. DSAC Class III (Moderate Urgency) – Dams that have issues where the dam is significantly inadequate or the combination of life, economic, or environmental consequences with probability of failure is moderate to high.
- D. DSAC Class IV (Low Urgency) – Dams are inadequate with low risk such that the combination of life, economic, or environmental consequences with a probability of failure is low and the dam may not meet all essential USACE engineering guidelines.
- E. DSAC Class V (Normal) – Dams considered adequately safe, meeting all essential agency guidelines and the residual risk is considered tolerable.

IV. National Parks Service

Classification	Lives in Jeopardy	Economic Loss
High	More than 6	Excessive (urban area including extensive community, industry, agriculture, or outstanding natural resources).
Significant	1-6	Appreciable (rural area with notable agriculture, industry, or worksites, or outstanding natural resources)
Low	0	Minimal (Undeveloped agriculture, occasional uninhabited structures, or minimal outstanding natural resources)

Attachment C – Emergency Classification Levels for Dams Affecting South Carolina

- I. **Federally Regulated Dams:** FEMA P-64 recommends that plain language terms be used when reporting dam failures for easier recognition and synchronization with the federal National Incident Management System guidelines.

A. Definitions:

1. **Imminent Failure**- indicates that time has run out, and the dam has failed, is failing, or is about to fail. Imminent Failure typically involves a continuing and progressive loss of material from the dam. For the purposes of evacuation, emergency management authorities may assume the worst-case condition that failure has already occurred.
2. **Potential Failure**- indicates that conditions are developing at the dam that could lead to a dam failure. Potential Failure should convey that time is available for analyses, decisions, and actions before the dam could fail. A failure may occur, but predetermined response actions may moderate or alleviate failure.
3. **Non-Failure**- appropriate for an event at a dam that will not, by itself, lead to a dam failure, but requires investigation and notification of internal and/or external personnel.
4. **High Flow**- indicates that flooding is occurring on the river system, but there is no apparent threat to the integrity of the dam. This level is used by the dam owner to convey to outside agencies that downstream areas may be affected by the dam's release.

- II. **SCDES:** SCDES maintains a standard template for EAPs that specifies the emergency level shall be one of three categories: Non-Emergency/Unusual Event, Potential Dam Failure Event, and Imminent or In-Progress Dam Failure Event. Dam owners may add additional emergency levels as they see fit, to include High Flow Event, which is appropriate for dams that have the capacity to release such high volumes of flow from spillways that downstream flooding impacts may occur even with no risk of dam failure.

Attachment D - Planning and Exercise Requirements for Regulated Dams

- I. All Federally regulated dams require an Emergency Action Plan (EAP).
- A. The primary federal guideline for Emergency Action Plan development for Dams is FEMA P-64. The purpose of this document is to provide guidelines for the preparation of an Emergency Action Plan (EAP) to facilitate the development of plans that are comprehensive and consistent. FEMA P-64, along with other dam safety federal guidelines can be found here:
- <https://www.fema.gov/grants/mitigation/learn/dam-safety/federal-guidelines>
- FERC, USACE, NPS, and SCDES each have more specific governing documents.
- A. Federal Energy Regulatory Commission (FERC) Guidelines for EAPs can be found here:
- <https://www.ferc.gov/sites/default/files/2020-04/chap6.pdf>
- B. The USACE Guidelines for EAPs and exercise and training guidance can be found in Chapter 16 here:
- http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER_1110-2-1156.pdf
- C. The National Parks Service follows the U.S. Department of the Interior’s Bureau of Reclamation guidance which can be found here:
- <https://www.usbr.gov/damsafety/risk/BestPractices/Presentations/C1-32-ConsequenceEstimatingEmpiricalApproachPP.pdf>
- D. The Dams and Reservoirs Act does not require an exercise or training program; however, dam owners having a hazard potential rating of “High” and “Significant” are required to maintain EAPs. Dam owners with a hazard potential rating of “Low” are not required to submit EAPs; however, SCDES investigates every five years to determine if their hazard levels necessitate a classification change. Currently, per the 2018 General Assembly Joint Resolution (S.1190), classification changes can only occur if a loss of life is expected. Details on SC DES Regulated Dams for planning can be found here:
- <https://des.sc.gov/programs/bureau-water/dams-reservoirs/dam-safety-laws-and-regulations>