
Emergency Management Plan

Section 7

7-1 Hurricane Plan

June 2006



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INTRODUCTION

A. General

The policy of the Horry County is to be prepared for any emergency or disaster. South Carolina State Regulations 58-1 and 58-101 require contingency plans and implementing procedures for major hazards, such as hurricanes, led by the state and coordinated with counties that have a potential of being impacted. These contingency plans must be coordinated with the state and with other counties. This plan has been coordinated with the State Hurricane Plan and with the other counties in the Northern Coastal Conglomerate.

B. Specific

This plan is subordinate to the Horry County Emergency Management Plan and is to be used in conjunction with each relative section of the EMP. This plan establishes specific policies and procedures to be followed when responding to the threat of a hurricane approaching the South Carolina coastline. This plan specifically addresses the pre-landfall phase. The Horry County Emergency Management Plan (EMP) addresses post-landfall activities.

SITUATION

County Information

Horry County is located in the northeastern portion of South Carolina and encompasses 1,160 square miles, or 741,300 acres. One of the county borders consists of 31 miles of the Atlantic coastline.

Hurricane Information

Horry County is susceptible to all levels of tropical cyclones, from tropical depressions to severe category 5 hurricanes. These tropical cyclones produce three major hazards: the storm surge, high winds, and rainfall-induced flooding.

1. **Storm Surge.** The storm surge is a large dome of water often 50 - 100 miles wide that sweeps across the coastline near where a hurricane makes landfall. The surge of high water topped by waves is devastating. The stronger the hurricane, the higher the surge will be. Along the immediate coast, storm surge is the greatest threat to life and property.
2. **Winds.** Hurricane winds can destroy buildings, mobile homes, and other property. Debris, such as signs, roofing material, siding, and other items become missiles in a hurricane. The winds are the greatest cause of property damage inland of the coast. In addition, hurricanes often produce numerous tornadoes, which add to the storm's destructive power. These tornadoes most often occur in rain bands well away from the center of the storm.

3. **Rainfall-induced Flooding.** Widespread torrential rains, often in excess of 6 inches, can produce deadly and destructive floods. Long after the winds have subsided, hurricanes can generate immense amounts of rain. In 1999, Hurricane Floyd produced high rainfall totals that resulted in devastating floods in South and North Carolina.

III. CONCEPT OF OPERATIONS

A. General Concepts

1. **Conglomerate Operations.** The State Hurricane Plan divides the state into three regions, called conglomerates. Horry County is a member of the Northern Coastal Conglomerate. The counties in the conglomerate have coordinated certain agreements; including using the same Operating Conditions (OPCON's) and matching the highest OPCON level in the conglomerate. In addition, Horry County serves as the Lead County in this conglomerate, responsible for passing information on the situation to the other counties.
 - a. Northern Coastal Conglomerate Counties: Horry, Georgetown, Marion, Lee, Florence, Dillon, Clarendon, Sumter, Darlington, Marlboro, and Williamsburg.
 - b. Central Coastal Conglomerate Counties: Charleston, Berkeley, Dorchester, Orangeburg, Calhoun, Richland, and Lexington.
 - c. Southern Coastal Conglomerate Counties: Beaufort, Jasper, Colleton, Hampton, Allendale, Bamberg, Barnwell, and Aiken.
 - d. Western Conglomerate Counties: Abbeville, Anderson, Cherokee, Chester, Chesterfield, Edgefield, Fairfield, Greenwood, Greenville, Kershaw, Lancaster, Laurens, McCormick, Newberry, Oconee, Pickens, Saluda, Spartanburg, and Union York.
2. **OPCON Triggers.** To ensure that all activated personnel in the county, the Northern Conglomerate and the State Emergency Management Division have coordinated hurricane response activities; the following OPCON levels will be utilized throughout the event:

OPCON 5: Hurricane Season

This OPCON indicates that hurricane season is open. Horry County will stay at OPCON 5 as of June 1st, the start of hurricane season. At this time all hurricane plans and procedures should be reviewed. Alert Rosters should be updated and verified. Storms will be monitored and tracked at this level.

OPCON 4: Alert

If the Horry County Emergency Management Director determines that a storm could possibly threaten Horry County, the County will be moved to OPCON 4. The primary events that will take place at this level are the notification of key personnel of the threat, and initiation of preparatory activities. The EOC (Emergency Operation Center) will not be activated at this stage.

OPCON 3: Stand-By

Once the Horry County Emergency Management Director has sufficient information that a storm poses a significant threat to county, the County will move to OPCON 3. This decision will be based on each the storm's specific characteristics. The EOC will be activated at this level, either at a partial or full status. The primary events that will occur include evacuation discussions, conducting pre-evacuation conferences and other preparatory activities.

OPCON 2: Preparation

Once a decision is made to recommend a Voluntary Evacuation or Mandatory Evacuation, the OPCON level will automatically move to OPCON 2. The EOC will be under Full Activation at this level. At this level shelters will be prepared for opening. Public notification will be coordinated and press conferences coordinated. It is understood that once the County moves to OPCON 2, the County is prepared to commit substantial amount of money and resources to the effort.

OPCON 1: Evacuation

Once a Voluntary Evacuation or Mandatory Evacuation order is announced to the public, the OPCON automatically moves to OPCON 1. At this level, the primary activity will be the evacuation of the vulnerable population. The EOC will remain at full activation throughout the evacuation and landfall.

IV. PLAN DEVELOPMENT AND MAINTENANCE**A. General**

This plan addresses how Horry County will manage a hurricane emergency in the "pre-landfall" phase. Post impact operations will be managed in accordance with the Horry County Emergency Management Plan (EMP). Designated "ESF Lead Departments" have the responsibility for coordinating, developing, and maintaining the portions of this plan that pertain to their ESF. The Horry County Emergency Management Director will perform overall coordination and provide developmental guidance.

B. Responsibility

The Horry County Emergency Management Director will supervise and coordinate the efforts of all county departments responsible for plan updates and revisions. As a minimum, this plan and all supplemental plans and procedures will be reviewed and updated on an annual basis.

TAB A

The Saffir/Simpson Hurricane Scale is used to provide an estimate of the potential property damage and flooding that can be expected along the coast due to a hurricane.

Category 1	Winds 74-95 mph	No real damage to building structures. Damage primarily to unanchored mobile homes, shrubbery, and trees. Some coastal flooding and minor pier damage
Category 2	Winds 96-110 mph	Some roofing material, door, and window damage to buildings. Considerable damage to vegetation, mobile homes, and piers. Coastal and low-lying escape routes flood. Small craft in unprotected anchorages break moorings.
Category 3	Winds 111-130 mph	Some structural damage to small residences and utility buildings with a minor amount of curtain-wall failures. Mobile homes are destroyed. Flooding near the coast destroys smaller structures with larger structures damaged by floating debris.
Category 4	Winds 131-155 mph	More extensive curtain-wall failures with some complete roof structure failure and small residences. Major beach erosion. Major damage to lower floors of structures near the shore.
Category 5	Winds 155 mph or Higher	Complete roof failure on many residences and industrial buildings. Some complete building failures. Catastrophic damage throughout the area of impact.

Hurricane Watches:

A hurricane watch is issued when there is a threat of hurricane conditions within 36 hours.

Hurricane Warning:

A hurricane warning is issued when conditions (winds of 74 mph or greater) are expected within 24 hours.

TAB B**Operations Terminology**

Counter Flow. Altering the flow of traffic in such a manner to allow for at least one lane of traffic to remain in the normal flow direction. On a four-lane highway, three lanes of traffic would move in one direction with one lane moving in the opposite direction.

Estimated Evacuation Clearance Times. Clearance time is the time required to clear roadway of all vehicles evacuating in response to a hurricane situation. Clearance time begins when the first evacuating vehicle enters the road network and ends when the last evacuating vehicle reaches an assumed point of safety.

Evacuation Zones. Areas in coastal counties vulnerable to storm surge inundation and rainfall-induced flooding.

Hurricane Tracking Tools. There are several computer programs that are used to track tropical storms and hurricanes as they move through the Atlantic. The primary hurricane-tracking program used by South Carolina is HURREVAC.

Lane Reversal. Altering the flow of traffic in a manner that traffic on all available lanes is moving in the same direction. Based on the situation, information and recommendations provided by the Emergency Support Function (ESF) Evacuation Traffic Management (ESF-16), the South Carolina Emergency Management Department (SCEMD) Director will assess the situation and in coordination with South Carolina Department of Public Safety (SCDPS) and South Carolina Department of Transportation (SCDOT), as well as the impacted counties, will make a recommendation to the Governor regarding implementation of the reversal plan.

Mandatory Evacuation. The Governor is the only person legally authorized to order and compel evacuation in South Carolina. The SCEMD Director will recommend to the Governor that a mandatory evacuation be ordered, and will propose a timetable. During a mandatory evacuation, mandatory evacuation shelters will be opened in accordance with this plan.

Operating Condition Levels. (OPCON's) In order to make maximum use of advance warning, a system of Operating Conditions was established. These OPCONs increase the Emergency Operations Center's level of readiness on a scale from 5 to 1. Each OPCON level is declared when a pre-determined set of criteria has been met. OPCONs will not necessarily progress sequentially from 5 to 1. The OPCON placed in effect at any given time will be the appropriate one for existing conditions at the time. Each OPCON includes those key issues regarding communications, essential coordination and response activities appropriate for the hazard threatening the county.

Protective Relocation. Inland populations are not vulnerable to the storm surge; however, they are at risk to the high winds and rain-induced flooding associated with hurricanes. In order to protect this population, it may be necessary to relocate those living in vulnerable structures or low-lying areas.

Reentry. Reentry is the transition from evacuation and landfall to the recovery phase.

Voluntary Evacuation. In the event a hurricane begins to pose a threat to the coast, local officials or the Governor can recommend that those citizens who feel uncomfortable about the storm leave the area. This action is considered a voluntary evacuation. During a voluntary evacuation, voluntary evacuation shelters will be opened.

TAB C

Acronyms

ARC	American Red Cross
ARES	Amateur Radio Emergency Services
ASL	Above Sea Level
CVA	Credential Verification Areas
DHEC	Department of Health and Environmental Control (state)
DOI	Department of Insurance
DOT	Department of Transportation
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
EMD	Emergency Management Division
ESF	Emergency Support Function
FEMA	Federal Emergency Management Agency
HazMat	Hazardous Materials
IDAT	Insurance Director Assessment Team
IRIS	Internet Routed Information System
NWS	National Weather Service
OPCON	Operating Condition
PIO	Public Information Officer
PRT	Public Relations and Tourism
SCDOT	South Carolina Department of Transportation (state)
SCEMD	South Carolina Emergency Management Division
SEOC	State Emergency Operations Center
SITREP	Situation Report
SHEP	State Highway Emergency Patrol
SOP	Standard Operating Procedures
TCP	Traffic Control Points
VMD	Variable Message Devices

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OPCON Activities/Descriptions

OPCON 5: Hurricane Season

June 1st is the first day of hurricane season. Horry County will remain at OPCON 5, day-to-day operations, unless a storm is posing a threat to the Horry County area. At this time all hurricane plans and procedures should be reviewed. Alert Rosters should be updated and verified. Storms will be monitored and tracked at this level.

Operations Manager

1. Review all preparedness plans, Standard Operating Procedures and update alert rosters.
2. Conduct an orientation meeting with selected county officials and emergency operations center staff to review hurricane evacuation and sheltering plans and procedures.
3. Review public information materials and methods for distribution.
4. Monitor the tropical weather situation on a daily basis.
5. When a storm is detected:
 - a. Review the advisory package and plot forecast data.
 - b. Consider discussing the situation with the following agencies
 - 1) SCEMD Operations
 - 2) NWS, Wilmington
 - 3) Georgetown County EPD
 - 4) Coastal Municipalities

OPCON 4: Alert

Once the Horry County Emergency Management Director determines that a storm could possibly threaten Horry County, operating conditions will move to OPCON 4. The primary events that will take place at this level are the notification of key personnel of the possible threat, initiation of preparatory activities, and limited staffing - primarily EMD personnel. The EOC will not be activated at this stage.

Operations Manager

1. Notify the following agencies of the current situation, to include upgraded OPCON status and storm forecast.
 - a. SEOC Operations
 - b. NWS, Wilmington
 - c. Municipal Emergency Management contact
 - d. Georgetown EPD
 - e. North Carolina County EMDs.
 - f. Marion County EPD

2. Review advisory package and plot forecast data. Determine projected evacuation timelines, to include voluntary relocation and mandatory evacuation schedules.
3. Participate in SCEMD-led telephone conferences discussing the storm.
4. Establish WebEOC.
5. Contact ESF 17 and verify the local situation, including a tourist profile, scheduled special events, etc.
6. Develop and distribute a SITREP to EOC officials.

ESF 3

1. Check emergency generators at M.L. Brown Building and at E911 Center. Ensure fuel tanks are full. Report back to the Operations Manager upon completion.

ESF 13

1. Consider developing a plan to draw down the population at J. Reuben Long Detention Center. If deemed necessary coordinate with the SEOC for transportation assistance.
2. Initiate coordination for evacuation traffic control.

FACILITIES GROUP

1. Check scheduling and determine who is scheduled to use the EOC. Notify them that they are subject to being rescheduled.
2. Coordinate with Salvation Army and notify them that the EOC might be activated in the near future and feeding operations for the EOC staff will be necessary.
3. Notify Building Maintenance to prepare for the EOC to be activated.
4. Inventory critical administrative supplies and if necessary, procure backup supplies.
5. Notify the Horry County EOC Shelter Manager (Parks and Recreation Department) about the possibility of shelter operations at Homewood Elementary School for EOC staff members and their families.

EXECUTIVE GROUP

1. Send notifications to the group and coordinate a teleconference is necessary.
2. The PIO will begin preparing the Media Area (Fire/Rescue Department classroom) for media operations.

OPCON 3: Activities

Once the Horry County Emergency Management Director has sufficient information that a storm poses a significant threat to county, we will move to OPCON 3. This decision will be based on each the storm's specific characteristics. The EOC will be activated at this level, either at a partial or full status. The primary events that will occur include evacuation discussions, conducting pre-evacuation conferences and other preparatory activities.

OPERATIONS MANAGER

1. Implement the EOP and activate the EOC. Based on the situation, determine if partial or full activation is required.
2. Notify the following agencies of the current situation.
 - a. EOC Operations
 - b. NWS, Wilmington
 - c. Municipal Emergency Management contact
 - d. Georgetown EPD
 - e. North Carolina County EMDs.
 - f. Marion County EPD
3. Review advisory package and plot forecast data. Determine projected evacuation timelines, to include voluntary relocation and mandatory evacuation schedules.
4. Participate in SCEMD-led telephone conferences discussing evacuation times. Be prepared to discuss any local issues that might impact on the evacuation, such as local festivals, golf tournaments, road construction, etc.

ESF 1

1. Check the evacuation routes and verify that they are prepared for maximum traffic volume. Report any problems that could affect the evacuation.
2. Stage the Variable Message Signs at the pre-determined locations.
3. Coordinate for the aerial over-flights of the primary evacuation routes. Coordinate with ESF 13 on reporting and monitoring the evacuation of traffic.
4. Develop a traffic assistance plan.

ESF 2

1. Review the EOC phone directory.
2. Develop a contingency plan for additional cellular phones.
3. Establish the Amateur Radio Net, primarily with the EOC in the county.
4. Develop a "911 Operator's Talking Points Sheet". Ensure each operator has accurate information on the situation. Continue to update as the situation develops.

ESF 3

1. Coordinate with ESF 6 regarding the erection of Hurricane Evacuation Shelter signs.
2. Ensure all critical vehicles and equipment have full fuel tanks.

ESF 5

1. Brief the EOC staff on documentation requirements for possible federal reimbursement.

ESF 6

1. Begin coordination for the possible opening of hurricane evacuation shelters. Verify the shelters are capable of sustaining operations.
2. Prepare list of shelter management teams for each Voluntary Relocation Shelter and each Mandatory Evacuation Shelter.
3. Begin discussions with school district officials regarding schedule modifications and closings. Notify private schools of the school district's decisions.

ESF 8

1. Notify hospitals of the hurricane situation and encourage them to consider implementing plans to draw down their patient census.
2. Notify nursing homes of the situation and encourage them to begin initiating their emergency plans.
3. Coordinate for the possible opening of Special Medical Needs Shelters.

ESF 13

1. Coordinate the additional resources for evacuation traffic control.
2. 2.Develop a security plan for the evacuation zones. Coordinate with ESF 7 and the SEOC if additional resources are needed.

ESF 14

1. Coordinate with local businesses regarding the situation.
2. Identify major events and special activities that could impact the evacuation.
3. Consider coordinating with directors of special public activities and events.
4. Coordinate with the Operations Manager to determine the number of individuals who would potentially be affected by an evacuation order.

FACILITIES GROUP

1. All administrative support personnel should be briefed on their duties.
2. Ensure the EOC Security Deck is operational.
3. Provide meals and refreshments for EOC staff.
4. Consider opening the County EOC Shelter at Homewood Elementary School. Ensure meals and refreshments are provided.

EXECUTIVE GROUP

1. Consider passing a resolution placing the county in a “State of Emergency.”
2. The Council Chairman should be available to communicate with the Governor regarding evacuation decisions.
3. The Administrator should coordinate with the Personnel Director regarding canceling leave for all essential personnel.
4. The PIO should ensure the media area is fully prepared for media operations.
5. All PIO augmenters should be briefed on their duties and responsibilities.

OPCON 2: Preparation

Once a decision is made to recommend a Voluntary Evacuation or Mandatory Evacuation, the OPCON level will automatically move to OPCON 2. The EOC will be under Full Activation at this level. At this level shelters will be prepared for opening. Public notification will be coordinated and press conferences coordinated. It is understood that once we move to OPCON 2, we are going to commit substantial amount of money and resources to the effort.

OPERATIONS MANAGER

1. Manage the EOC Operations in accordance with the Horry County EOP.
2. Notify the following agencies of the current situation.
 - a. SEOC Operations
 - b. NWS, Wilmington
 - c. Municipal Emergency Management contact
 - d. Georgetown EPD
 - e. North Carolina County EMDs.
 - f. Marion County EMD
3. Monitor the weather situation.
4. Be available for media interviews and press conferences.

ESF 1

1. Install Variable Message Signs at designated locations.
2. Begin monitoring traffic patterns and prepare to adjust traffic signals, as appropriate.
3. Prepare to implement the traffic assistance plan.

ESF 2

1. Complete the establishment of the Amateur Radio Network.

ESF 3

1. In coordination with ESF 13, position equipment to support evacuation.
2. Install Hurricane Evacuation Shelter signs.
3. Take appropriate actions to protect critical Horry County facilities.

ESF 4

1. Prepare to assist ESF 13 with “evacuation warning” in the evacuation zones.
2. Coordinate for the movement and/or protection of fire equipment during the storm’s impact.

ESF 6

1. Prepare to open shelters.
2. Coordinate with the PIO for a press release once the evacuation decision is announced.

ESF 8

1. Prepare to open Special Medical Needs Shelters. Coordinate with the PIO for a press release once the evacuation decision is announced.

ESF 13

1. Position resources to manage the evacuation traffic. Resources must be in place prior to the start of the voluntary relocation.
2. Prepare to conduct “evacuation warning” in the evacuation zones, within the unincorporated portions of the county. Coordinate with ESF 4 for additional resources.
3. Implement the security plan in the evacuated areas.

FACILITIES GROUP

1. Continue to provide meals and refreshments for the EOC staff.
2. Monitor the status of the County EOC Shelter at Homewood Elementary

EXECUTIVE GROUP

1. Prepare to conduct a Press Conference supporting the evacuation and encouraging participation.

OPCON 1: Activities

Once a Voluntary Evacuation or Mandatory Evacuation order is announced to the public, the OPCON automatically moves to OPCON 1. At this level, the primary activity will be the evacuation of the vulnerable population. The EOC will remain at full activation throughout the evacuation and landfall.

OPERATIONS MANAGER

1. Manage the EOC Operations in accordance with the Horry County EOP.
2. Notify the following agencies of the current situation.
 - a. SEOC Operations
 - b. NWS, Wilmington
 - c. Municipal Emergency Management contact
 - d. Georgetown EPD
 - e. North Carolina County EMDs.
 - f. Marion County EPD
3. Monitor the weather situation.
4. Monitor the evacuation and report to the SEOC any problems. Request feedback on the evacuation status from the North Carolina Counties.
5. Be available for media interviews and press conferences.

ESF 1

1. Monitor the evacuation and ensure traffic moves as rapidly as possible.
2. Implement the traffic assistance plan.
3. Begin preparations for an immediate assessment of the road network following the storm's impact.
4. Review the priority for assessing and clearing the roads.

ESF 2

1. Monitor the status of all communication systems. Coordinate for immediate repair or replacement following landfall.

ESF 3

1. Complete actions to protect critical county facilities.
2. Move and disperse equipment to safe areas.
3. Begin planning for debris management following impact.

ESF 4

1. Complete the “evacuation warning” of the affected zones.
2. Move equipment to safe areas.
3. Develop a plan for post-impact search and rescue of the coastal areas.

ESF 5

1. Coordinate with the SEOC regarding the post-impact assessment. Determine specific requirements and assistance that will be necessary.
2. Plan for the staffing and management of the county Re-Entry Stations.

ESF 6

1. Monitor the status of evacuation shelters. Determine if Supplemental Shelters are necessary. Coordinate closely with other agencies.
2. Begin developing a post-impact Feeding Plan.
3. Begin planning for the transition from hurricane evacuation shelters to post-impact shelters.

ESF 7

1. Identify possible staging areas.
2. Prepare to implement the Horry County Logistics Plan.

ESF 8

1. Monitor the Special Medical Needs Shelters, and immediately respond to all requests for assistance.
2. Monitor the situation at the local area hospitals.

3. Monitor Nursing Home evacuations.
4. Consider developing a plan for establishing medical outreach sites (first aid stations) at the hardest hit locations. Coordinate with ESF 7 for additional resources that would be required.

ESF 13

3. Monitor the evacuation routes and maintain maximum traffic flow
4. Plan for Re-entry
5. Plan for post-impact security requirements. Coordinate with ESF 7 and the SEOC on additional resources that might be needed.

Evacuation Areas

Category 1 Evacuation Area

All residents and tourists East of Business US 17 in the southern Grand Strand and East of US 17 in the northern Grand Strand area, all residents living in low-lying areas along rivers, streams, and creeks, and all manufactured housing residents.

Category 2 Evacuation Area

All residents and tourists East of Business US 17 in the southern Grand Strand and East of US 17 in the northern Grand Strand area, all residents living in low-lying areas along rivers, streams, and creeks, and all manufactured housing residents.

Category 3 Evacuation Area

All residents and tourists East of Bypass US 17 in southern Grand Strand and East of US 17 in the northern Grand Strand area, all residents living in low-lying areas along rivers, streams, and creeks, and all manufactured housing residents.

Category 4 Evacuation Area

All residents and tourists East of Bypass US 17 in southern Grand Strand and East of US 17 in the northern Grand Strand area, all residents living in low-lying areas along rivers, streams, and creeks, and all manufactured housing residents.

Category 5 Evacuation Area

All residents and tourists East of Intracoastal Waterway, residents living in low-lying areas along rivers, streams, and creeks, and all manufactured housing residents.