Dam and Levee Breach Incident Annex

Coordinating and Primary Agency

Mississippi Emergency Management Agency (MEMA)
Mississippi Department of Environmental Quality (MDEQ)
    Dam Safety Division

Support Agencies

Mississippi Department of Transportation (MDOT)
Mississippi Wireless Communications Commission (WCC)
Mississippi Public Service Commission (PSC)
Mississippi Department of Human Services (MDHS)
Mississippi Department of Education (MDE)
Mississippi Forestry Commission (MFC)
Mississippi State Department of Health (MSDH)
Mississippi Office of Homeland Security (MOHS)
Mississippi Department of Wildlife, Fisheries, and Parks (MDWF&P)
Mississippi Department of Marine Resources (MDMR)
Mississippi Department of Agriculture and Commerce (MDAC)
Mississippi Board of Animal Health (MBAH)
Mississippi Public Utilities Staff (MPUS)
Mississippi Department of Public Safety (MDPS)
Mississippi Military Department (MMD)
Mississippi Levee Board
Yazoo-Mississippi Delta Levee Board
All other state Agencies, Departments, and Commissions

Non-Government Organizations

American Red Cross (ARC)
Salvation Army (SA)

Federal Coordinating Agency

Department of Homeland Security (DHS)
    Federal Emergency Management Agency (FEMA)
United States Army Corps of Engineers (USACE)

Federal Supporting Agencies

Department of Commerce (DOC)
- National Oceanic and Atmospheric Administration (NOAA)
- National Weather Service (NWS)

Federal Energy Regulatory Commission (FERC)

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1. INTRODUCTION. This Annex provides an overview of the State's all-hazards response concepts related to a *Dams Sector* incident. It explains how the all-hazards approach is essential to an overall response framework and provides guidelines to apply these concepts to dams, levees, and related infrastructure.

The Dams Sector comprises the assets, systems, networks, and functions related to dam projects, navigation locks, levees, hurricane barriers, mine tailing impoundments, and other similar water retention and/or control facilities. Dam projects are complex facilities that typically include water impoundment or control structures, reservoirs, spillways, outlet works, powerhouses, canals, or aqueducts. In some cases, navigation locks are also part of the project.

As dam and levee structures/facilities comprise the majority of the sector threat in Mississippi, and for the purpose of this document, the terms *Dam and Levee* and *Dams Sector* are interchangeable.

Each dam and levee is unique because of differences in project configurations, engineering details, project benefits, and potential consequences from possible damage to the dam or levee. Therefore, applying appropriate crisis management measures as part of a response framework will be unique for each project.

a. Purpose. This Annex is developed to support an organized response to a dam or levee incident/breach affecting the State of Mississippi. It is an overview of the emergency management processes and responsibilities approach. It is not intended to be a step-by-step plan that lists every possible action that could be taken. Instead, it is designed to guide state, tribal, local, and municipal officials, Emergency Support Functions (ESFs), and other key stakeholders in response and coordination efforts when faced with an incident/breach. It establishes a framework for these officials and responders to ensure coordination, communication, and cooperation.

b. Scope. Due to the varying size, scope, and effects of a dam or levee incident/breach, this Annex expands on the general concepts and operational procedures already detailed in the CEMP and the MEMA Response Framework. Specific operational policies, procedures, and guidelines developed by respective organizations to address the unique aspects of a dam or levee incident/breach will supplement this Annex and be intended to assist state, tribal, county, and municipal planners.

This Annex applies to all governmental functions of the State of Mississippi; this is accomplished through a detailed tasking of response actions according to the sixteen (16) ESFs detailed in the CEMP. The Annex provides structures for implementing state-level policy and operational coordination. It can be partially or fully implemented in response to an incident. The selective implementation allows for a scaled response, delivery of the needed resources, and coordination

appropriate to the event. It is also used when Mississippi's capabilities are exceeded and a federal government response is requested.

2. OVERVIEW. Dams and levees are vital to the Nation's infrastructure and provide various economic, environmental, and social benefits, including hydroelectric power, river navigation, water supply, flood control, and recreation.

While dams offer numerous benefits, they also provide some potential hazards. In the event of a dam or levee failure, the volume of the water stored, even behind a small dam, is capable of causing loss of life and significant property damage. Dams and levees may fail for one or a combination of the following reasons:

- Overtopping caused by floods
- Structural failure
- Foundation failure
- Earthquake
- Piping and internal erosion
- Inadequate maintenance
- Operational errors
- Deliberate manmade actions

More than 6,100 dams in Mississippi are listed in the United States Army Corps of Engineers (USACE) National Inventory of Dams (NID). In the NID, the downstream hazard potential (e.g., the risk or damage a dam can pose due to failure or negligent operation) is classified as High, Significant, or Low. About 363 Mississippi dams are classified as having a high hazard potential.

The USACE National Levee Database (NLD) includes attributes of levees and floodwalls relevant to flood fighting, design, construction, operation, maintenance, repair, and inspection. The database lists 108 levee systems in Mississippi, comprised of 978 miles of levees with an average age of 63 years. The NID assigns Risk Classification Ratings to levees as Very High, High, Moderate, Low, Very Low, or No Verdict.

a. Understanding a Dam and Levee Breach Incident. Before a dam or levee incident, jurisdictions should work closely with dam and levee owners and operators to ensure that personnel have a thorough understanding of the dams and/or levees in or impacting their community, what types of incidents may occur, the potential consequences of such incidents, what measures can be taken for different types of emergencies, and when they should be taken. Emergency Action Plans (EAPs), which dam owners and operators often create, are essential for developing dam incident plans. If a dam owner or operator does not have an EAP or has an outdated one, involving the owner/operator in the dam incident planning process could provide an impetus for addressing that gap.

In the event of a dam or levee failure, uncontrolled release of the water stored behind even a small dam or levee could cause property damage and loss of life. For some dams and levees, failure can potentially cause massive casualties and severe long-term economic consequences. Even if damage to a dam or levee only prevents it from operating as intended, there could be significant economic impacts to the owner, the surrounding community, the region, and potentially the Nation.

b. Types of Dams. See the *Federal Emergency Management Agency (FEMA) Dam Awareness Fact Sheet* for a complete overview of dam classifications, purposes and types, components, and common failure modes. The types of dams commonly seen in Mississippi include but are not limited to:

(1) Embankment Dam. Any dam constructed of excavated natural materials or of industrial waste materials.

(a) Earth dam. An embankment dam in which more than 50 percent of the total volume is formed of compacted earth material generally smaller than 3-inch size.

(b) Hydraulic fill dam. An embankment dam is constructed of materials, often dredged, which are conveyed and placed by suspension in flowing water.

(c) Rockfill dam. An embankment dam in which more than 50 percent of the total volume is composed of compacted or dumped cobbles, boulders, rock fragments, or quarried rock generally larger than 3-inch size.

(2) Industrial Waste Dam. An embankment dam, usually built in stages, creates storage for waste product disposal from an industrial process. The waste products are conveyed as fine material suspended in water to the reservoir impounded by the embankment. The embankment may be built of conventional materials but sometimes incorporates suitable waste products.

c. Types of Levees.

(1) Artificial Levee. Artificial levees may be built in areas more prone to floods. These can be constructed using various materials, including wood, metal, or plastic. Piles of natural materials such as soil and rocks are stacked to create the high ridges. Artificial levees may be built to allow for more construction in the area, such as building more housing. Artificial levees prevent flooding of the adjacent countryside and confine the river's flow, resulting in higher and faster water flow. The surfaces of artificial levees must be protected from erosion, so they are planted with vegetation, like Bermuda grass, to bind the earth together.

(2) Natural Levee. Natural levees are composed of earth materials such as silt and sediment and form organically. When a river floods over its banks, the water spreads out, slows down, and deposits its sediment load. Over time, the river's banks are built up above the level of the rest of the floodplain. The resulting ridges are called *natural levees*.

(3) Permanent Levee. Permanent levees are constructed using stone, brick, cement, or other tough materials to withstand a flood. These can more closely resemble walls and can require more space on which to be built. Placing permanent levees is crucial not to disturb property lines or drainage patterns.

(4) Temporary Levee. Levees that work as a temporary solution (for instance, if a permanent levee breaks or to allow for bridge building) are typically wide at the base and narrower near the top. Because temporary levees must resist erosion, it is common to utilize vegetation to strengthen them. By planting vegetation, the roots and earth will bind for additional protection. Another common type of temporary levee is placing sandbags that will soak up excess water.

d. Dam Hazard Potential Classification System. FEMA's Hazard Potential Classification System describes a system for determining and communicating a dam's hazard potential. The classification levels build upon one another.

(1) Low Hazard Potential. Dams where failure or misoperation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to an owner's property.

(2) Significant Hazard Potential. Dams where failure or misoperation results in no probable loss of human life but can cause economic loss, environmental damage, and/or disruption of lifeline facilities or can affect other concerns. Significant hazard potential classification dams are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure.

(3) High Hazard Potential. Dams where failure or misoperation will likely cause loss of human life.

e. Levee Risk Classification Rating. The USACE Risk Classification Rating system describes a system for determining and communicating a levee's hazard potential. Levee risk is the risk that exists due to the levee system's presence and is the risk used to inform the decision on the Risk assignment.

The risk information outlined below does not reflect the overtopping without breach risk associated with the presence or operation of the levee system.

(1) Very High Risk. Based on risk drivers, take immediate action to implement interim risk reduction measures. Increase frequency of levee monitoring; communicate risk characteristics to the community within an expedited timeframe; verify emergency plans and flood inundation maps are current; ensure the community is aware of flood warning systems and evacuation procedures; and recommend purchase of flood insurance. Support risk reduction actions as a very high priority.

(2) High Risk. Based on risk drivers, implement interim risk reduction measures. Increase frequency of levee monitoring; communicate risk characteristics to the community within an expedited timeframe; verify emergency plans and flood inundation maps are current; ensure the community is aware of flood warning and evacuation procedures; and recommend purchasing flood insurance. Support risk reduction actions as high priority.

(3) Moderate Risk. Based on risk drivers, implement interim risk reduction measures as appropriate. Verify risk information is current and implement routine monitoring program; assure O&M is up to date; communicate risk characteristics to the community in a timely manner; verify emergency plans and flood inundation maps are current; ensure the community is aware of flood warning and evacuation procedures; and, recommend purchase of flood insurance. Support risk reduction actions as a priority.

(4) Low Risk. Verify risk information is current and implement routine monitoring program and interim risk reduction measures if appropriate; assure O&M is up to date; communicate risk characteristics to the community as appropriate; verify emergency plans and flood inundation maps are current; ensure the community is aware of flood warning and evacuation procedures; and, recommend purchase of flood insurance. Support risk reduction actions to further reduce risk to as low as practicable.

(5) Very Low Risk. Continue implementing routine levee monitoring programs, including operation and maintenance, inspections, and risk monitoring. Communicate risk characteristics to the community as appropriate; verify emergency plans and flood inundation maps are current; ensure the community is aware of flood warning and evacuation procedures; and recommend purchasing flood insurance.

(6) No Verdict. Not enough information is available to assign Risk.

f. Incident Timeline. Timing is everything for a dam or levee breach incident. No-notice incidents are potentially catastrophic, especially for large reservoirs like Grenada and Sardis Lakes and the Ross Barnett Reservoir or a mainline Mississippi River levee with large population densities immediately downstream. However, given advanced notice of a potential failure, comprehensive EAPs and local Emergency Operations Plan (EOP), executed appropriately, can significantly mitigate the life safety aspects of an incident.

Depending on several factors, such as failure location, failure mode, shape, time, and trigger mode, engineers can analyze a potential failure and estimate the breach location, size, and development time to estimate the outflow hydrographs and downstream inundation accurately. Downstream flooding effects may develop slowly for breach incidents on many of Mississippi's rivers and lakes. Developing an inundation timeline will aid in evacuation and mitigation priorities.

3. SITUATION. The most significant breach event potentially impacting Mississippi is a no-notice release from a substantial lake or high-volume river/levee structure. The speed and catastrophic effects of a large volume of water and collected debris will impact the ability to respond for evacuations and life-safety search and rescue. The most potentially catastrophic no-notice breach incidents include, but are not limited to (in no particular order):

(a) Sardis Lake, Grenada Lake, Ross Barnet Reservoir dam failure (water volume, speed, population density immediately downstream, and economic impact);

(b) Mississippi River (main line) levee failure (water volume, speed, population, and economic impact);

(c) Tennesse-Tombigbee Waterway levee or Lock and Dam failure (water volume, speed, population, and economic impact).

4. ASSUMPTIONS. In the absence of facts, planning assumptions are information presumed to be accurate and necessary to facilitate planning. Assumptions help establish a baseline for planning and do not dictate specific activities or decision points that would occur during an incident. During consequence management, assumptions may be validated as facts.

a. The threat of a breach may still cause a mass evacuation and the need for shelters.

b. Complete information about a breach/release will not be immediately available. Situational awareness largely depends on the type of release and its characteristics. Decisions will need to be made without complete information.

c. The breach/flooding incident may be a result of an earthquake. Continued tremors and damage may compromise the safety of response and recovery personnel and degrade the response effort in time and scope.

d. EAPs or flood inundation maps may not be available for some incidents.

e. A federal dam, levee, or lock breach will include federal response and recovery assets.

f. Local emergency managers will need outside assistance from the Statewide Mutal Aid Compact (SMAC), state assistance, and possibly federal support.

g. Downstream catastrophic flooding incidents may cause mass casualties that strain local and regional healthcare capabilities.

h. State agencies will activate and use multiple legal authorities to respond to and recover from a breach/flooding incident.

i. Incidents may require actions to protect the population, such as rapid and long-term evacuation and displacement from affected areas.

j. Most evacuees will travel along the primary evacuation routes and gravitate to the most prominent communities offering accommodations and services.

k. Individuals with disabilities, access and functional needs, the elderly, and non-English speaking populations may lack food, shelter, transportation, and communication ability.

l. Approximately 16.4 percent of Mississippi's population has a disability. Preparedness, prevention, response, recovery, and mitigation efforts will be consistent with federal policy and guidelines.

m. Local governments and emergency responders will be engaged in disaster response operations requiring state assistance to provide security, entry, and exit control operations.

n. Federal assistance may be necessary to restore Critical Infrastructure and Key Resources (CIKR).

o. When national interests are in jeopardy, the Department of Homeland Security (DHS) will exercise authority to reach outside provisions of the Stafford Act.

p. The communications infrastructure in disaster-impacted areas may sustain significant damage, creating communications gaps and limitations over a widespread area.

q. The electrical utility infrastructure in impacted areas may sustain significant damage, leaving homes and businesses without power and the capability to pump water, operate wastewater systems, and fuel vehicles.

r. Damage to the electrical grid and flooding may cause extended power outages.

s. The size, scope, or complexity of a breach/flooding incident will overwhelm existing state, tribal, and local capabilities and resources, causing considerable strain on the whole community.

t. Livestock and animals must be cared for, including those abandoned and accompanying shelter-seeking persons.

u. Re-entry forces will encounter significant debris on routes during the initial re-entry phase.

v. Heavy equipment may be needed to aid the re-entry forces during the initial stages of re-entry.

w. Traffic control points (TCPs) will be established to limit access to evacuated areas and reduce public exposure to dangerous conditions.

x. Recovery of the affected populations and environments may take many years.

5. PLANNING CONSIDERATIONS. Due to the complexities of the Dams Sector facilities and the numerous and varying crisis management scenarios threatening the State, a community dam and levee incident plan following a definitive planning process as outlined in the FEMA Comprehensive Preparedness Guide (CPG) 101 is more critical than ever. Not only should the dam or levee owner have an EAP, but the local Emergency Management Agency (EMA) needs a complimentary Emergency Operations Plan (EOP) to address the downstream effects of the breach.

a. Critical Considerations.

(1) Coordinating Structures. If a breach incident affects both the environment and the population, close coordination between the emergency management and environmental protection communities will be required throughout the incident. If a breach incident is caused by or suspected of having been caused by terrorism or other criminal activity, coordination with the counterterrorism and law enforcement communities must also be included.

(2) Decision Coordination. Interdependent decisions of mission areas should be coordinated through a unified command and associated Incident Command System (ICS) processes to avoid unintended consequences. Interdependent decisions include, but are not limited

to, coordination and delivery of emergency-related resources, site security, interoperable communications, and protective actions for the public.

(3) Legal and Policy Decisions. Critical legal and policy decisions will be required during a response where federal or state authorities conflict or intersect. Examples include movement restrictions and restoration and maintenance of civil order.

(4) Public Information. Despite the initial lack of incident information, the public will need authoritative and accurate information in a developing situation. ESF #15 will coordinate unified messaging from the incident site or through the local EMA, Joint Information Center (JIC) at the SEOC. For a suspected or actual terrorist threat or attack, the Governor will direct the Mississippi Office of Homeland Security (MOHS) and the Attorney General to coordinate to provide public information and warning to the state regarding the threat or attack.

(5) Public Safety. State, tribal, and local public safety stakeholders must consider public safety and security while implementing response and recovery measures.

(6) Fatality Management. Fatality management resources could be strained by flooding incidents that cause mass fatalities. Systems for managing human remains may be overwhelmed because of unusually large numbers. The remains could be hazardous due to the presence of toxic chemicals. Law enforcement investigations may also necessitate that human remains be recovered and preserved as evidence.

(7) Resource Competition. Resources may be constricted, and competition among various governmental entities and the private sector should be anticipated. Responding organizations should coordinate to distribute resources appropriately.

b. Dam and Levee Planning Process. As emergency management doctrine specifies that all incidents start locally and end locally, the majority of the incident planning will be conducted by the dam and levee owner (EAP) and the local EMA. When developing a dam and levee incident EOP, Annex, or EAP, following the six-step planning process outlined in FEMA's CPG 101 is recommended.

Additionally, the following concepts should be included within the six steps of the dam incident planning process:

(1) Involve Defined Authorities on the Planning Team. Dam incident planning must be consistent with existing authorities, roles, and responsibilities as defined in current statutes, regulations, delegations of power, memoranda of understanding/agreement (MOUs/MOAs), policies, and other guidance documents. The driving authority for the community dam incident

plan is the local EMA. Considering the authorities and regulations under which each dam may operate is important. Some dams are privately owned, local or state organizations own others, and some are federally owned. Each of these dam owners and operators will have some of their unique requirements for dam safety planning. The community dam incident plan must be informed by each local dam's EAP. Communities and private sector dam owners should create a memorandum of understanding to identify specific roles, responsibilities, and equipment to be provided during an incident response.

(2) Establish a Common Understanding. Establishing a common understanding of the plan's objectives, strategies, and tactics is important to overall coordination. Plans need to be viable for each community and locally supportable, and they need to be acceptable to the dam owner/operator.

(3) Employ Zone-Based Operational Strategies. Plans should articulate operational strategies and support decisions to promote phased, zone-based evacuation or other protective actions for notice and no-notice incidents. This process should be informed by a detailed analysis of populations at risk.

Planners should identify specific evacuation zones for areas potentially affected by a dam incident. Planners may also identify zones as areas nearest the dam (i.e., immediately downstream) or areas downstream of a dam that are lowest-lying and most vulnerable to inundation. Protective action decisions that include evacuation orders or shelter-in-place directions should clearly state that the decision applies only to the specific zones that need evacuating or sheltering.

(4) Implement a Unified Coordination Process and Command. Most communities identify the need for specific coordination protocols across jurisdictional and organizational boundaries. When no one community, agency, or organization has primary authority and/or the resources to manage an incident, a unified command should be established.

During a dam or levee incident, the owner, operator, and any significantly affected private sector organizations (such as utility companies) should be included in the unified command structure. Such inclusion helps ensure a common understanding of the evolving situation at the site, the resulting consequences, and the actions taken.

(5) Use a Public/Private Planning Approach. Local community planners should include a whole community approach in developing dam incident plans, including dam owners and operators, other private sector stakeholders, and NGOs. Community planners should engage these partners early and throughout the planning process to provide perspective and solicit buy-in.

c. Flood Inundation Mapping. Inundation mapping is one of the most critical components and should be one of the first functions in the planning process. The primary purpose of an

inundation map is to show the areas that would be flooded and travel times for wavefront and flood peaks at critical locations if a dam or levee failure occurs or there are operational releases during flooding conditions. See an example flood inundation map below.

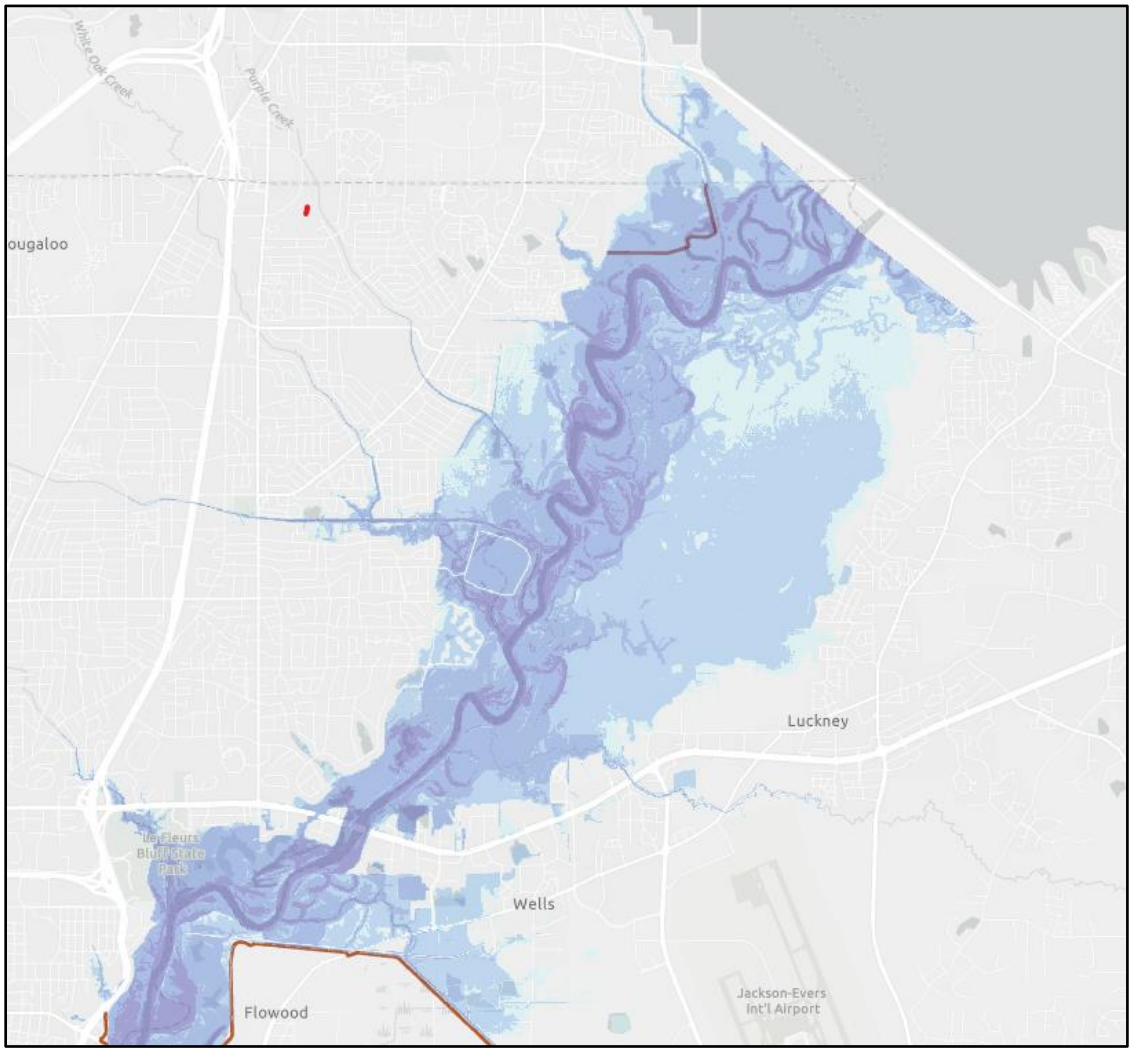

Figure 1: Example Flood Inundation Map

Inundation maps are used both by the dam owner/operator and emergency management authorities to:

(1) Narrow the response focus to only those areas potentially affected;

(2) Identify the scope and magnitude of the potentially affected area;

(3) Conduct impact studies to identify the critical needs population, critical infrastructure, potential shelter sites out of the impacted area, etc.;

(4) Develop EAPs and EOPs;

(5) Develop evacuation zones and strategies;

(6) Facilitate timely notification and evacuation of areas potentially affected by a dam failure or flood condition;

(7) Identify other local and unique requirements.

For more information on flood inundation mapping, contact the MDEQ Dam Safety Office or see *FEMA's Federal Guidelines for Dam Safety, Emergency Action Planning for Dams, FEMA 64*, section II.B.3 *Inundation Maps*.

d. Emergency Level and Warning Level Categories. One of the first steps in the planning process will be to develop/adopt the emergency and warning level categories used in the jurisdiction. All concerned must understand the emergency level categories and warning levels used to ensure unity of effort and avoid potential confusion. ***Emergency Levels*** categorize the threat – the ***Warning Levels*** identify the severity of the threat and the protective actions necessary based on local requirements and incident parameters.

(1) Emergency Level Categories. The four emergency level categories listed below are recommended in *FEMA's Federal Guidelines for Dam Safety*, *Emergency Action Planning for Dams, FEMA 64*. However, in a collaborative effort, emergency management authorities and dam owners should determine the appropriate number of emergency levels required for each dam or levee on a case-by-case basis.

(a) High Flow. The High Flow emergency level indicates that flooding is occurring on the river system, but there is no apparent threat to the dam's integrity. The dam owner uses the High Flow emergency level to convey to outside agencies that downstream areas may be affected by the dam's release. Although the amount of flooding may be beyond the control of the dam owner, information on the timing and amount of release from the dam may be helpful to authorities in making decisions regarding warnings and evacuations.

(b) Non-Failure. The Non-Failure emergency level applies to an event at a dam that will not, by itself, lead to a failure but requires investigation and notification of internal and/or external personnel. Examples are (1) new seepage or leakage on the downstream side of the dam and (2) malfunction of a gate. Some incidents, such as new seepage, may only require an internal response from the dam owner. Others, such as a gate malfunction, may lead to unexpected high releases that could pose a hazard to the downstream public and require outside agencies' notification.

(c) Potential Failure. The Potential Failure emergency level indicates that conditions are developing at the dam that could lead to a dam failure.

(d) Imminent Failure. The Imminent Failure emergency level 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 material loss from the dam. It is not usually possible to determine how long a complete breach of a dam will take. Therefore, once a decision is made that there is no time to prevent failure, the Imminent Failure warning must be issued. For evacuation purposes, emergency management authorities may assume the worst-case condition that failure has already occurred.

(2) Warning Level Categories. After an emergency is detected and confirmed, the dam owner should ***categorize*** the condition of the incident by a warning level based on the severity of the initiating condition or triggering events. The dam owner and emergency management authorities should understand and agree on using the warning level categories. The warning level categories should trigger the appropriate response activities delineated in the owner's EAP and the EMA EOP. Maintaining the consistency of the warning level categories is essential to eliminate confusion for emergency responders whose community contains multiple dams and dam owners.

A community might have its own dam incident warning levels, which differ from other local EOCs or those used by the United States Army Corps of Engineers (USACE), Federal Energy Regulatory Commission (FERC), or FEMA. The table below provides a template to assist in reconciling leveling system terminology. The USACE leveling system appears in the first column, the corresponding FERC level appears in the second column (note that FERC does not include a level III equivalent level; therefore, it is blank), the third column, the corresponding FEMA levels, and a blank fourth column is included for communities to include their equivalent leveling terminology. Planners should review the definitions and associated actions for each USACE, FERC, and FEMA level and ensure comparable community warning levels.

USACE	FERC	FEMA	LOCAL
Level IV (highest)	Imminent Threat Alert	Imminent Failure	
Level III		Potential Failure	
Level II	Elevated Threat Alert	Non-Failure	
Level I	Normal Condition	High Flow	

Table 1: Federal Threat/Warning Levels

EMAs and dam/levee owners should work together to develop thresholds that will trigger specific warnings and response actions. When time is of the essence, knowing exactly which protective action to order can save lives. For more information, see section *6. Concept of Operations*.

e. Dam and Levee Emergency Action Plans (EAP). EAPs guide owners and operators in responding to and mitigating impending incidents and minimizing potential risks to life safety and property. An EAP is a formal document that identifies potential emergency conditions at a dam and specifies actions to be followed to minimize loss of life and property damage. The EAP includes:

(1) Actions the dam and/or levee owner will take to moderate or alleviate a problem at the dam.

(2) Actions the dam and/or levee owner will take, and in coordination with emergency management authorities, to respond to incidents or emergencies related to the dam.

(3) Notification lists to mobilize resources and procedures dam and/or levee owners will follow to prevent imminent failures during emergencies and to communicate appropriate danger warnings to local authorities, upstream and downstream dams, and the public.

(4) Inundation maps to help dam and/or levee owners and emergency management authorities identify critical infrastructure and population-at-risk sites that may require protective measures, warning, and evacuation planning.

(5) Delineation of the responsibilities of all those involved in managing an incident or emergency and how the responsibilities should be coordinated.

(6) They may also address various preparedness issues, such as alternative communications systems, emergency supplies, and equipment.

EAPs must be site-specific because conditions are unique at each dam or levee and downstream. For additional information on developing an EAP, complete with suggested outlines, content, checklists, and examples, see the *MDEQ EAP Template* and the *FEMA Federal Guidelines for Dam Safety, Emergency Action Planning for Dams, FEMA 64, July 2013*.

f. Recovery Plan. In addition to the immediate safety issues addressed in the EMA EOP and owner/operator EAP, damage or failure of a dam or levee can have long-term economic impacts. These will undoubtedly impact the dam owner but might also have broader effects on the community, other industries, or regional or national economies. Therefore, rapid restoration of dam functions may be necessary to help minimize such impacts. Recovery plans can be used to

help prepare for quick repair of damage. Recovery plans might address short-term repairs to partially restore project functions and long-term repairs to restore the project entirely.

g. Exercises. While planning is essential for effective crisis management, periodic exercising of those plans is necessary to test their adequacy and appropriateness. Exercises raise awareness of potential crisis situations, ensure key staff members are familiar with the plans, and understand their roles and expected actions. In addition, exercises can help identify shortcomings in the plans, leading to their improvement.

6. CONCEPT OF OPERATIONS. This Annex's Concept of Operations will outline some critical and must-have components of a dam or levee breach EAP and/or EOP to ensure a timely, executable, and efficient response. Support elements responding from inside and outside the affected jurisdiction will look for these components to integrate seamlessly into the operation.

a. Triggers and Activation. Dam and levee owners and operators should be involved in helping emergency managers determine the conditions that will trigger a specific protective action. Communities should develop triggers to activate the dam and levee EAP and local EOP when an incident meets, or is expected to meet, at least one of the following conditions:

(1) Requires protective action orders and/or a local emergency declaration from the authority having jurisdiction to access needed funding and resources to support the mission;

(2) Requires activation of the Multi-Agency Coordination (MAC) group to address the needs of the incident, including accessing significant or unusual resources and coordinating continued operations of the dam;

(3) Anticipates or experiences impacts that exceed the capability or capacity of the community and require assistance from other communities, the state, and/or the federal government;

(4) Requires citizens to evacuate from their homes;

(5) Covers large geographic areas that will require extensive internal and external jurisdictional coordination;

(6) Affects large numbers of people and requires mass care and human services missions and life sustainment missions for those sheltering in place.

b. Protective Actions by Dam or Levee Incident Type. Dam and levee EAPs and EMA EOPs should have protective actions established based on local assessments of the threats from

dam and levee breaches. This section lists examples of protective action options that can be taken for various threats. The actions of local authorities may vary depending on the size, scope, and location of the dam or levee, volume and flow of the water, proximity to structures or population, infrastructure, livestock, etc.

(1) Threat vs. Public Action for Dam Breach.

Physical Observation	Threat Level Designation	Flood Threat	Protective Action Option
Water flowing through a breach in the embankment	**USACE**: Level IV **FERC**: Imminent Threat Alert **FEMA**: Imminent Failure Dam breaching or breached	Imminent or in progress	• Evacuate by vehicle • Evacuate on foot • Evacuate to higher ground • Evacuate to a safer structure • Expedient protection of people • Avoid area
Rapidly enlarging sinkhole	**USACE**: Level III **FERC**: Imminent Threat Alert **FEMA**: Potential Failure Dam breach	Very likely	• Evacuate by vehicle • Expedient protection of possessions • Avoid area
New seepage areas with cloudy discharge or increasing flow rate	**USACE**: Level II **FERC**: Elevated Threat Alert **FEMA**: Non-Failure Conditions at dam may or may not lead to breach	Possible but not certain	• Expedient protection of possessions • Seek or monitor information • Prepare to evacuate

Physical Observation	Threat Level Designation	Flood Threat	Protective Action Option
New seepage areas in or near the dam	**USACE**: Level I **FERC**: Normal condition **FEMA**: High Flow Safety issues being Investigated	Potential being determined	• Seek or monitor information

Table 2: Example Dam Breach Triggers, Threat, and Protective Action Options

(2) Threat vs. Public Actions for Controlled Dam Release.

Threat Level Designation	Flood Threat	Protective Action Options
USACE: Level III **FERC**: Imminent Threat Alert **FEMA**: Potential Failure Releases exceed or forecast to exceed xxx cfs	Significant for some occupied structures and evacuation routes	• Evacuate by vehicle • Evacuate on foot • Avoid Area • Expedient protection of structures • Expedient protection of possessions
USACE: Level II **FERC:** Elevated Threat Alert **FEMA:** Non-Failure Releases exceed or forecast to exceed yyy cfs	Some near river in unoccupied areas	• Evacuate on foot • Seek or monitor information • Avoid area • Prepare to evacuate
USACE: Level I **FERC**: Normal condition **FEMA**: High Flow Releases less than zzz cfs	None outside of channel	• Evacuate on foot if in or on water • Avoid area (water) • Continue normal activities

Table 3: Example Dam Controlled Release Threat vs. Protective Action Options

(3) Threat vs. Public Actions for Levee Breaches and Overtopping.

Physical Observation	Threat Level Designation	Flood Threat	Adjacent Area Protective Action Options
Water flowing through a breach in levee embankment	**USACE**: Level IV **FERC**: Imminent Threat Alert **FEMA**: Imminent Failure	Levee breached or overtopped, imminent or in progress	• Evacuate by vehicle • Evacuate on foot • Evacuate to higher ground • Evacuate to a safer structure • Avoid area • Expedient protection of people • Expedient protection of structures • Expedient protection of possessions
River level forecast to exceed top of levee	**USACE**: Level III **FERC**: Imminent Threat Alert **FEMA**: Potential Failure	Levee is starting to breach or overtop, very likely	• Evacuate by vehicle • Avoid area • Expedient protection of structures • Expedient protection of possessions
Visual movement/ slippage of the embankment slope	**USACE**: Level II **FERC**: Elevated Threat Alert **FEMA**: Non-Failure	Conditions at levee may or may not lead to flooding, possible but not certain	• Expedient protection of structures • Expedient protection of possessions • Seek or monitor information • Prepare to evacuate

Physical Observation	Threat Level Designation	Flood Threat	Adjacent Area Protective Action Options
New seepage areas spotted in leveed area	**USACE**: Level I **FERC**: Normal condition **FEMA**: High Flow	Safety issues being Investigated, potential being determined	• Seek or monitor information

Table 4: Example Levee Breach and Overtopping Threat vs. Protective Action Options

c. Communication and Notification Strategy. The initial phase of a dam or levee incident can be characterized by confusion, uncertainty, and intense media interest. Information is usually incomplete, and the facts are often scattered. The organization's communicators and decision-makers will be required to collect information about what happened, separate facts from rumors, activate communication responses, and coordinate with other responding agencies. Situational awareness is at a premium, with few second chances to get communication right during this phase of a crisis.

(1) Communications Plan. The communications plan is not a step-by-step or how-to document and should not be overly long or detailed. The plan should provide a basic, general structure, including procedures to assist with making decisions and disseminating information. Examples of components include, but are not limited to:

(a) Targeted Audience. Identify potential audiences needing information during and following an incident, including whole community partners and media members. Ensure the communication methods include methods to communicate with persons of disability or those with limited English speaking ability. Ensure that this list comprises audiences receiving messages that are required by law or regulation and those partners the organization will need to support the response effort (e.g., first responders, evacuation centers, and non-governmental organizations).

(b) Key Messages. Develop messages to be used in response to varying incident scenarios. Pre-scripted messages can be tailored during an actual incident based on what the intended audience needs to know and through what mechanism(s) they are accessing the information. Messages should include a brief description of what happened, a timetable for future actions, and suggested actions the intended audience should take. Depending on when the messages are released and to whom (i.e., internal or external audience), the details of these messages may vary.

(2) Notification Flowchart. A Notification Flowchart identifies who will be notified of a dam safety incident, by whom, and in what order. The information on the flowchart is critical for

the timely notification of those responsible for taking emergency actions. For ease of use during an incident, the EAP should include Notification Flowcharts that clearly present the information listed below. One chart or a set of charts may be needed depending on the complexity of the hazards associated with the dam and the potentially affected downstream areas.

(a) Emergency level of the Notification Flowchart if more than one flowchart is required;

(b) Individuals who will notify dam owner representatives and/or emergency management authorities

(c) Prioritization of notifications

(d) Individuals who will be notified

The Notification Flowchart should include appropriate contact information such as names, positions, telephone numbers, and radio call numbers. Supplemental contact information may be included in a list or table of emergency contacts. Supplemental contact information may consist of fax numbers, e-mail addresses, direct connect numbers, and alternate contacts. The Notification Flowchart may also be supplemented by NIMS ICS Forms, such as ICS Forms 205 and 205a.

The Notification Flowchart must be tailored to each incident or jurisdiction's needs and notification priorities. It is usually recommended that one person be responsible for contacting no more than three or four other parties. At a minimum, the Notification Flowchart should designate who dam owners will contact and who the local emergency management authorities will contact, as described below.

Dam/Levee owner/operators will contact:

- Engineer/management staff/public affairs officer;
- Local emergency authorities or 911 centers;
- MDEQ Dam Safety program representatives;
- Other regulatory authorities;
- Upstream and downstream dam owners

Local emergency management authorities will contact the following:

- Other local responders such as police or fire;
- MEMA State Warning Point;
- Affected residents and businesses;
- Appropriate NWS WFO

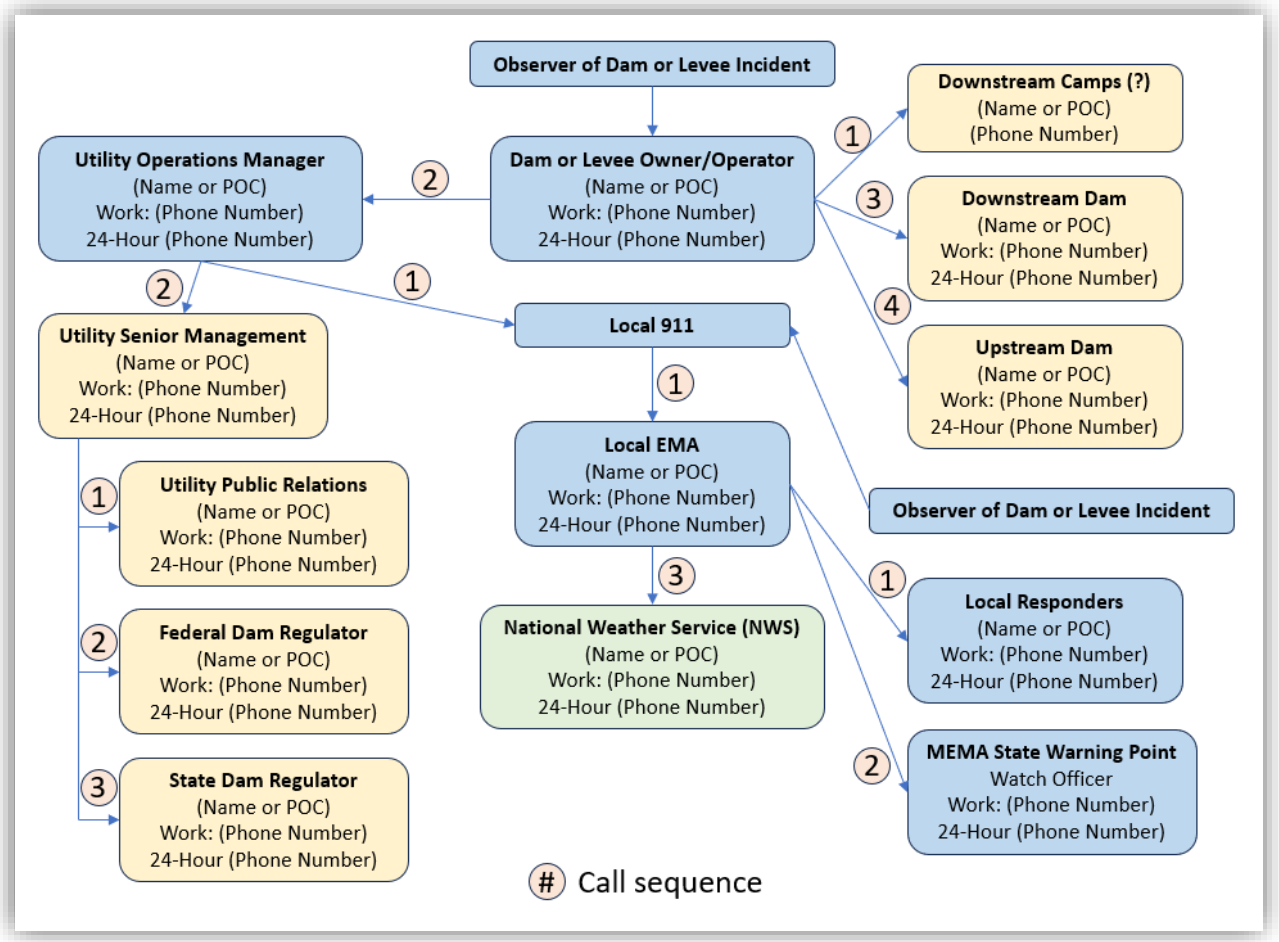

Figure 2: Example Notification Flowchart

For more information on State-level communications concepts and strategies, see *ESF #2 (Communications) Annex* and *ESF #15 (External Affairs) Annex* to the *MS CEMP*.

d. Evacuation Strategy. Evacuation planning and implementation is typically the responsibility of local emergency management authorities, supported by the State. Although a dam or levee EAP does not need to include an evacuation plan, it should indicate who is responsible for evacuation and whose plan will be followed.

The duration of an evacuation is incident-dependent and varies depending on community size, location, and resources. The best evacuation strategy is to move as few people as possible in the shortest distance to safety. Planning evacuation operations to meet this goal also helps reduce resource burdens, facilitate a more efficient re-entry, and move a community toward recovery.

Planners must consider concepts such as roadway capacity, characteristics of the evacuating population, and effective evacuation communications.

Emergency managers and dam owners must identify areas where warning time is critical and develop a strategy to address time-sensitive areas. Strategies should include early warning systems, as well as proactive outreach and risk communication to the population at risk.

Inundation maps developed by the dam owner must be shared with emergency management authorities and included in the EAP and the EMA EOP. These maps will help in the development of warning and evacuation plans. It is important for dam owners to coordinate with the appropriate emergency management authorities and provide information from dam inundation studies that can assist with evacuation planning.

The local EMA should develop dam and levee breach emergency evacuation plans before an incident occurs. The plans are recommended to be based on a worst-case scenario and to address the following:

(1) Initiation of emergency warning systems;

(2) Pre-incident planning;

(3) Identification of critical facilities and sheltering;

(4) Evacuation procedures, including flood wave travel time considerations (e.g., evacuation of special needs populations, lifting evacuation orders);

(5) Distance and routes to high ground;

(6) Traffic control measures and traffic routes;

(7) Potential impact of weather or releases on evacuation routes, such as flooded portions of the evacuation route before the dam incident occurs;

(8) Vertical evacuation/sheltering in place;

(9) Emergency transportation;

(10) Safety and security measures for the perimeter and affected areas;

(11) Re-entry into affected areas;

(12) SMAC support or requirements;

(13) State assistance support or requirements.

For more information on dam and levee incident evacuation planning, see *FEMA Emergency Operations Planning: Dam Incident Planning Guide*, section *4. Developing an Evacuation Strategy*.

See the *Evacuation Support Annex* to the *Mississippi Comprehensive Emergency Management Plan (CEMP)* for state-level evacuation guidance.

e. Search and Rescue. The need for search and rescue (SAR) will be immediate for no-notice incidents, especially those involving structures and/or a population base downstream from the release. Local SAR assets will be decisively engaged, and SMAC and/or state assistance may be required. SAR support requests will be submitted to the State Emergency Operations Center (SEOC), Emergency Support Function (ESF) #9 (SAR).

f. Sheltering. Sheltering will be incident-dependent during a dam or levee breach incident. The sheltering phase is a local county government responsibility, and the participation of local emergency management in this process is critical to a successful shelter transition. The involvement of local agencies can positively impact helping shelters to open, operate, and close.

State shelter logistics and resource requirements are established based on the short-term general population capability targets. Mississippi does not play a direct operational role in disaster sheltering for the general population. The state shelter support capability is based on the capacity to deliver resources to the sheltering agents in the local jurisdictions in a timely manner after an event.

See the *Shelter Support Annex* to the *MS CEMP* for state-level shelter guidance.

g. Re-Entry and Reunification. As with operational demobilization from an incident, re-entry and reunification of evacuees must be planned for at the local level during an evacuation. Evacuee accountability, residency, family unity, health and welfare, finances, pets, and mobility must all be considered during evacuation to ensure a successful re-entry/reunification.

7. ROLES AND RESPONSIBILITIES. In coordination with MDEQ Dam Safety, MEMA manages a state-level response to a dam or levee breach incident. As the Governor's Authorized Representative (GAR), MEMA's Executive Director is the individual overall responsible.

Mississippi Code 1972 Annotated, Title 33. Military Affairs, Chapter 15. Emergency Management and Civil Defense, Article 1. Emergency Management Law (§ 33-15-1 – 33-15-53) provides the legal basis for emergency response-related authorities, including the Governor's emergency powers. Each state organization listed below in Section 7.a. charged with emergency response is led by a chief executive ultimately responsible for the organization's activities. § 33-15-14 further stipulates each responding organization will develop an operational plan, and § 33-15-53 mandates the assignment of designated emergency coordination officers (ECO). The emergency coordination officer is responsible for coordinating with MEMA on emergency preparedness issues, preparing and maintaining emergency preparedness and postdisaster response and recovery plans for such agencies, maintaining personnel rosters to assist in disaster operations, and coordinating appropriate training for agency personnel. For a complete roster of the current state ECOs, contact the MEMA SEOC.

a. State Operational Roles.

(1) Governor's Office.

(a) Provides direction and control to ensure the health and safety of the state's population.

(b) If needed, declare a state of emergency to enhance response and recovery.

(c) Requests federal assistance when needed.

(d) Issues executive orders, if needed.

(e) Implement necessary protective action recommendations and issue evacuation orders, if needed, through the MEMA Executive Director and MDEQ Director.

(2) Mississippi Emergency Management Agency (MEMA).

(a) Coordinating and Primary agency for ESF #2 (Communications), ESF #5 (Emergency Management), ESF #7 (Logistics), ESF #14 (Cross-Sector Business and Infrastructure), and ESF#15 (External Affairs).

(b) Provides for the activation and staffing of the State Emergency Operations Center (SEOC).

(c) Provides for the activation and staffing of the State Warning Point (SWP).

(d) Provide for the activation and staffing of the Joint Information Center (JIC).

(e) Provide for the activation and staffing of the Business Emergency Operations Center (BEOC).

(f) Notifies and coordinates state and federal agency activities in implementing this Annex in the event of a dam or levee breach emergency.

(g) Provides for adequate emergency communications.

(h) Coordinate with ESF #7 to acquire ESF #9 SAR logistical needs for search and rescue efforts.

(i) Assists local governments in the development and maintenance of Dam and Levee EOP plans and procedures.

(j) Provides for collecting and disseminating public information in coordination with local government, the utility, and other agencies.

(k) Coordinate with other EMAC states and FEMA to identify the availability of possible SAR resources.

(l) Provides continuity of technical, administrative, and material resources during response operations.

(m) Coordinates the allocation and use of resources during an emergency.

(n) Receive and disseminate signed SOE, EO, and/or Administrative Order, as required.

(o) Coordinate specialized assistance.

(p) Provides continuity of technical, administrative, and material resources during response operations.

(q) Provides a representative to the incident command post with communications and decision-making authority as necessary.

(3) Mississippi Department of Environmental Quality (MDEQ), Dam Safety Division.

(a) Coordinating and Primary agency for ESF #10 (Oil and Hazardous Materials Response).

(b) Coordinating and Primary agency for Dam Safety.

(c) Coordinate response and recovery efforts with federal, state, local, private-sector, and out-of-state relief counterparts.

(d) Coordinate and provide specialized dam and levee technical assistance.

(e) Provide inundation mapping and incident site EAPs, as available.

(f) Provides assistance to affected areas when requested.

(g) Survey impacted areas to assess the impact on critical facilities and locations where hazardous chemicals, flammable substances, and explosives are stored and/or used.

(h) Coordinate with ESF #4 to identify flood-threatened HAZMAT facilities or locations.

(i) Identify logistical needs for hazardous material (HAZMAT) response efforts and coordinate acquisition with ESF #7.

(j) Assist ESF #3 with assessing, rehabilitating, and restoring public sewage collection and treatment systems.

(k) Establish exclusion zones around hazardous material release sites and provide technical guidance on areas requiring evacuation.

(l) Develop and implement emergency debris removal and disposal guidance with ESF #3 and coordinate the siting and operation of emergency debris management sites with local governing authorities and the US Army Corps of Engineers (USACE) when activated.

(m) Assist in the reclamation of soil and water resources.

(4) Mississippi Department of Transportation (MDOT).

(a) Coordinating and Primary Agency for ESF #1 (Transportation).

(b) Provides transportation assets to support the movement of supplies, equipment, and disaster workers.

(c) Assess damage to highways, roads, bridges, rail, and port facilities immediately affected in the impacted area.

(d) Assess damage to commercial airports immediately affected in the impacted area.

(e) Immediately evaluate the availability of transportation routes capable of use by response personnel.

(f) Manage transportation resources to support response requirements.

(g) Prioritize the use of existing or available transportation assets.

(h) Erect appropriate road/bridge closure signage for all roads and bridges deemed unsafe for travel.

(i) Perform expedient repairs of roads and bridges where deemed appropriate.

(j) Assist in the designation of safe evacuation routes.

(k) Assist ESF #6 (Mass Care, Emergency Assistance, Temporary Housing, and Human Services) in moving emergency supplies into selected shelters or points of distribution (POD) areas identified as safe and on cleared secured routes.

(l) Assist ESF #8 with transportation requirements for access and functional needs populations.

(m) Coordinate response and recovery efforts with federal, state, local, private-sector, and out-of-state relief counterparts.

(5) Mississippi Wireless Communication Commission (WCC).

(a) Primary agency for ESF #2 (Communications).

(b) Provide and maintain equipment and processes necessary to ensure interoperable communications.

(c) Mississippi Information Technology Services (ITS) provides telecommunications systems, services, and support to state government agencies.

(d) Operates the Mississippi Wireless Information Network (MSWIN) 700 MHz P-25 statewide communication network and deploys Master Site-On-Wheels (MSOW) and Site-On-Wheels (SOWs) as necessary to the affected area.

(e) Maintains a cache of portable radios to be distributed during emergencies, training exercises, or special events.

(f) Assess damage to communications infrastructure and facilities immediately affected in the impacted area.

(g) Coordinate with private-sector companies to restore and maintain communications networks and update SEOC with network status.

(h) Coordinate response and recovery efforts with federal, state, local, private-sector, and out-of-state relief counterparts.

(6) Mississippi Public Service Commission (PSC).

(a) Primary agency for ESF #3 (Public Works and Engineering).

(b) Assess damage to public works and engineering facilities immediately affected in the impacted area.

(c) Support agency for ESF#12 (Energy) to restore electrical power systems.

(d) Coordinate with the Mississippi Rural Water Association (MsRWA) and private companies to restore the affected areas' water and wastewater systems.

(e) Maintain public works and engineering systems status and provide system updates to SEOC.

(f) Coordinate response and recovery efforts with federal, state, local, private-sector, and out-of-state relief counterparts.

(7) Mississippi Department of Human Services (MDHS).

(a) Coordinating and Primary Agency for ESF #6 (Mass Care, Emergency Assistance, Temporary Housing, and Human Services).

(b) Assess human services and mass care needs immediately affected in the impacted area.

(c) As necessary, activate the Mississippi Multi-Agency Shelter Support Plan (MASSP)

(d) Relocate shelters from facilities determined by ESF #3 to be structurally damaged or otherwise unsafe.

(e) In coordination with ESF #7, support the request for resources for established feeding operations (including water, ice, and other essential commodities) at the designated shelter sites and other fixed sites through mobile feeding units and the bulk distribution of food at PODS.

(f) As safe shelters are identified, coordinate with ESF #1 to determine the status of safe routes to and around the shelter facility.

(g) As necessary, assist in the coordination of improvised emergency shelters.

(h) Assist in coordinating the reunification of families separated during the disaster.

(i) Coordinate with ESF #5 and ESF #6 on transitioning displaced persons from emergency shelters to short- and possibly long-term housing.

(j) Coordinate response and recovery efforts with federal, state, local, private-sector, and out-of-state relief counterparts.

(8) Mississippi Department of Education (MDE).

(a) Primary agency for ESF #6 (Mass Care, Emergency Assistance, Temporary Housing, and Human Services).

(b) Assist ESF #6 with sheltering and meals.

(c) Implement public school closure as directed by the Board of Education.

(d) Assess damage to public school facilities immediately affected in the impacted area.

(e) Assist local school districts with getting schools back open.

(f) Coordinate with local school districts to use school buses, as feasible, when needed to support emergency evacuation. Note: School district-employed bus drivers may not be available in this situation. (In all probability, this will be the case in districts directly affected by the incident).

(g) Coordinate response and recovery efforts with federal, state, local, private-sector, and out-of-state relief counterparts.

(9) Mississippi Forestry Commission (MFC).

(a) Primary Agency for ESF #7 (Logistics).

(b) Provide an IMAT to establish and operate the State Staging Area (SSA).

(c) Conduct commodity management and distribution in coordination with MEMA and the MSNG.

(d) Coordinate response and recovery efforts with federal, state, local, private-sector, and out-of-state relief counterparts.

(10) Mississippi State Department of Health (MSDH).

(a) Coordinating and Primary Agency for ESF #8 (Public Health and Medical Services).

(b) Coordinate and maintain the status of emergency medical triage and treatment, casualty collection sites, and transport services in the impacted area.

(c) Coordinate with ESF #1 regarding medical transportation issues as required.

(d) Coordinate with ESF #6 in providing required medical services in emergency shelters using volunteers.

(e) Assess damage to medical facilities immediately affected in the impacted area.

(f) Assist local emergency medical services in evacuating non-ambulatory patients to other medical facilities.

(g) Coordinate mass fatality operations.

(h) Coordinate mortuary services and family assistance centers.

(i) Coordinate the provision of mental health/crisis counseling services for disaster victims, as well as emergency responders.

(j) Coordinate with ESF #7 regarding supplemental health/medical re-supply issues.

(k) Coordinate response and recovery efforts with federal, state, local, private-sector, and out-of-state relief counterparts.

(11) Mississippi Office of Homeland Security (MOHS).

(a) Coordinating and Primary Agency for ESF #9 (Search and Rescue).

(b) Identify logistical needs for search and rescue efforts and coordinate acquisition with ESF#7.

(c) Coordinate the development, notification, and mobilization of the Mississippi SAR Task Force(s) and the Response Logistical Task Force to support SAR operations.

(d) Coordinate SAR efforts with federal, state, and local SAR teams deployed to operational areas (federal RRF and EMAC).

(e) Assess damage to Critical Infrastructure and Key Resource (CIKR) facilities immediately affected in the impacted area.

(f) Coordinate with local, state, and federal authorities to investigate potential acts of terrorism.

(12) Mississippi Department of Wildlife, Fisheries, and Parks (MDWF&P).

(a) Primary Agency for ESF #9 (SAR) in coordination with the MOHS and MEMA; Primary Agency for ESF #13 (Public Safety and Security) with MDPS.

(b) Identify logistical needs for search and rescue efforts and coordinate acquisition with ESF #7.

(c) Assist with security at POD sites.

(d) Assist local law enforcement as needed.

(e) Assess damage to wildlife, fishery, and park facilities immediately affected in the impacted area.

(f) Coordinate response and recovery efforts with federal, state, local, private-sector, and out-of-state relief counterparts.

(g) Coordinate with local, state, and federal authorities to support investigations of potential acts of terrorism.

(13) Mississippi Department of Marine Resources (MDMR).

(a) Support Agency for ESF #9 (SAR) in coordination with the MOHS and MDWF&P; Support Agency for ESF #10 (Oil and Hazardous Material Response) with MDEQ, Support Agency for ESF #13 (Public Safety and Security) with MDPS.

(b) Provide coastal/salt-water area support to dam and levee incident response and recovery operations.

(c) Coordinate response and recovery efforts with federal, state, local, private-sector, and out-of-state relief counterparts.

(d) Coordinate all HAZMAT response efforts with MDEQ field personnel who have responded to the affected areas.

(e) Coordinate all SAR response efforts with ESF #9.

(f) Coordinate all public safety and security response efforts with ESF #13.

(g) Coordinate with local, state, and federal authorities to support investigations of potential acts of terrorism.

(14) Mississippi Department of Agriculture (MDAC).

(a) Coordinating and Primary Agency for ESF #11 (Animals, Agriculture, and Natural Resources).

(b) Coordinate food safety response activities, including inspecting and verifying food safety aspects of slaughter and processing plants and products in distribution and retail sites under the department’s jurisdiction.

(c) Assist local farms and ranchers with the relocation of livestock.

(d) Assess damage to agricultural and commerce assets immediately affected in the impacted area.

(e) Assist local individuals with damage assessments to crops.

(f) Assist ESF #6 with shelter needs.

(g) Coordinate response and recovery efforts with federal, state, local, private-sector, and out-of-state relief counterparts.

(15) Mississippi Board of Animal Health (MBAH).

(a) Coordinating and Primary agency for ESF #11 (Animals, Agriculture, and Natural Resources).

(b) Alert/activate any veterinary emergency personnel residing as provided by the current affected counties' CEMP.

(c) Coordinate the provision of companion/service animal sheltering with ESF #6.

(d) If required, identify potential animal carcass disposal sites and collection and disposal methods in coordination with ESF #8 and ESF #10.

(e) In coordination with ESF #15, issue animal health and care advisories.

(f) Initiate the rescue, transport, shelter, identification, triage, and treatment of domesticated animals in affected areas.

(g) Assess damage to livestock and poultry immediately affected in the impacted area.

(h) As soon as possible, coordinate the identification of any supplemental animal health resources needed for the state from the federal level and provide them to the SEOC for submission to FEMA.

(i) Coordinate with the SEOC all domesticated animal response efforts with any (MBAH) field personnel who may have responded in the affected counties.

(j) Coordinate burial and/or disposal of animal carcasses.

(k) Review and authenticate out-of-state veterinary licenses and certification for in-state use as directed by the state licensing board.

(l) Coordinate emergency medical care for all animals.

(m) Coordinate support for the sheltering of pets for persons within medical needs shelters.

(n) Coordinate response and recovery efforts with federal, state, local, private-sector, and out-of-state relief counterparts.

(16) Mississippi Public Utilities Staff (MPUS).

(a) Coordinating and Primary agency for ESF #12 (Energy).

(b) Determine damage impact and operating capabilities of utilities in the disaster area.

(c) Prioritize resource deployment to critical areas.

(d) Coordinate with private companies to restore the affected areas' electrical, water, and communications.

(e) Coordinate pipeline restoration.

(f) Coordinate logistical support requirements with utility restoration crews.

(g) Coordinate the use of state resources to support restoration efforts when applicable.

(h) Coordinate identifying any supplemental energy resources that may be needed for the state from the federal level and provide them to the SEOC for submission to FEMA.

(i) Continue to maintain an affected county's energy status report that reflects damage/outage information previously collected and projected power restoration dates.

(j) Coordinate response and recovery efforts with federal, state, local, private-sector, and out-of-state relief counterparts.

(17) Mississippi Department of Public Safety (MDPS).

(a) Coordinating and Primary agency for ESF #13 (Public Safety and Security).

(b) In coordination with ESF #1, establish a traffic management/control plan based on evacuation plans and damage to primary/secondary roads and bridges.

(c) Provide security at critical facilities and other locations, including hospitals, shelters, casualty collection points, HAZMAT locations, jails, government facilities, etc.

(d) Support SAR operations and traffic control.

(e) Provide security and property protection.

(f) In coordination with ESF #15, disseminate critical public safety information.

(g) Provide 24-hour backup communications capability.

(h) Provide for identification of any deceased persons with assistance from MSDH.

(i) Coordinate response and recovery efforts with federal, state, local, private-sector, and out-of-state relief counterparts.

(j) Coordinate with local, state, and federal authorities to investigate potential acts of terrorism.

(18) Mississippi Military Department (MMD).

(a) Coordinating agency for ESF #16 (Military Support to Civil Authorities).

(b) Establish the state Air Operations Branch (AOB); coordinate with FEMA Air Operations Branch, as necessary.

(c) Assist with the security of locations as needed.

(d) Assess damage to roads, bridges, and infrastructure.

(e) Conduct a structural safety assessment and structural demolition.

(f) Coordinate with ESF #1 for highway, bridge, and runway repair.

(g) In coordination with ESF #1 and ESF #10 (Oil and Hazardous Materials Response), develop a debris removal plan, including identifying possible disposal sites.

(h) Establish and operate POD sites for commodities.

(i) Assist with aerial and ground SAR.

(j) Remove debris from rights of way.

(k) Coordinate response and recovery efforts with federal, state, local, private-sector, and out-of-state relief counterparts.

(19) Mississippi Levee Board.

(a) Provide levee system technical support as required.

(b) Assess damage to levee systems immediately affected in the impacted area.

(c) Coordinate with the applicable state and federal dam regulatory agencies.

(20) Yazoo-Mississippi Delta Levee District.

(a) Provide levee system technical support as required.

(b) Support local and state EOCs with mobile command center, as required.

(c) Assist with GIS, flood inundation mapping, and EAP development as required.

(d) Assess damage to levee systems immediately affected in the impacted area.

(e) Coordinate with the applicable state and federal dam regulatory agencies.

b. Tribal. The Mississippi Band of Choctaw Indians (MBCI) responsibilities and actions will be similar to those outlined below in "c. Local."

c. Local.

(1) County Boards of Supervisors.

(a) Responsible for directing and controlling the County response to any dam or levee breach incident.

(b) Declares a state of local emergency when conditions warrant such measures.

(c) Prepares a local resolution to the Governor requesting an SOE.

(d) Impose a curfew within designated boundaries where necessary to preserve public order and safety.

(e) Order the evacuation of any area subject to flooding.

(f) Control or restrict egress, ingress, and movement within the disaster area to the degree necessary to facilitate the protection of life and property.

(g) Identify and task county assets to support evacuation transportation requirements.

(2) Local Civil Defense/Emergency Management Agencies.

(a) Coordinate with the applicable state and federal dam regulatory agencies.

(b) Maintain an inventory of dams and levee systems within the county.

(c) Identify dam hazard and levee risk classifications for all sites/systems.

(d) Form a collaborative planning team to develop, maintain, and execute a dam and levee Emergency Operations Plan (EOP).

(e) Develop site-specific and zoned-based evacuation plans for each dam and levee system and pre-identify evacuation routes.

(f) Develop a site-specific sheltering plan for each dam and levee system. Each plan should consider people and animals, including livestock relocation recommendations.

(g) Coordinate with schools, daycare centers, hospitals, etc., in the downstream area concerning proper precautions and emergency actions prior to a potential dam failure.

(h) Ensure dam and levee owners operators develop and maintain site-specific EAPs with flood inundation maps.

(i) Obtain and maintain a copy of all EAPs and flood inundation maps.

(j) Develop and maintain a site-specific Notification Flowchart for each dam or levee system. See item 6.c.(2). above for details.

(k) Develop, maintain, and execute a dam and levee incident public notification, alert, and warning system.

(l) Develop, maintain, and execute a public information campaign to provide notification, alert, and warning methods, evacuation plans, livestock relocation recommendations, and sheltering plans.

(m) Conduct annual reviews to update/validate EOPs and EAPs with other local authorities and owners/operators.

(n) Notify NWS of the incident and jointly develop public messaging notifications.

(o) Coordinates with MEMA, MSDH, MDHS, and American Red Cross to implement protective action decisions.

(p) Activate local Emergency Operations Center (EOC).

(q) Provide adequate emergency communications.

(r) Directs the county's response, assigns missions and tasks, and directs the action that controls emergency operations.

(s) Coordinate with MEMA SEOC for resource support.

(t) Provides resource continuity within the county.

(u) Coordinates with MEMA External Affairs (JIC) for public messaging support.

(v) Address rumor control and misinformation through active public messaging.

(w) Conduct damage assessments in the impacted area.

(x) Conduct recovery operations.

(3) County Sherriff's Offices.

(a) Maintains the 24-hour county warning point, where applicable.

(b) Maintains communications with county EOC.

(c) Assists with evacuations.

(d) Maintains law and order within the jurisdiction.

(e) Provides a representative to the incident command post with communication and decision-making authority to establish and assume incident command as required.

(f) Establishes Traffic Control Points at pre-designated locations to limit ingress and control egress from affected areas within the county.

(g) Coordinate with local, state, and federal authorities to support the investigation of potential acts of terrorism.

(4) County Fire Departments.

(a) Maintains fire control services.

(b) Conduct/support search and rescue and high-water vehicle operations.

(c) Support POD operations.

(5) County Department of Human Services.

(a) Supports the American Red Cross and other county or volunteer organizations, staffing shelter facilities as needed.

(b) Provides a central location service to reunite separated family members.

(5) County Health Departments.

(a) Assists with any health hazard that might arise.

(b) Maintains coordination with the County Department of Human Services.

(c) Ensures the shelter facilities have access to first aid and other medical and dental support.

(6) County Road Maintenance/Departments. Provide personnel and equipment for traffic and access control, debris removal, and high water fording at designated points within the county.

(7) County Public School Districts.

(a) Arranges for the termination of school activities due to dam or levee incident.

(b) Assists the County Department of Human Services in reuniting families that have been separated during an evacuation.

(8) City Mayors.

(a) Responsible for directing and controlling the city's evacuation procedures and response to the dam or levee incident.

(b) Impose a curfew within designated boundaries where necessary to preserve public order and safety.

(9) City Police Departments.

(a) Maintains law and order within their jurisdiction.

(b) Provide traffic control points as necessary.

(c) Assists with the evacuation of residents.

(d) Provide security in evacuated areas.

(e) Maintains communication with the County EOC.

(f) Coordinate with local, state, and federal authorities to support the investigation of potential acts of terrorism.

(10) City Fire Departments.

(a) Maintains fire control services.

(b) Conduct/support search and rescue and high-water vehicle operations.

(c) Support POD operations.

d. Dam and Levee Owners and Operators.

(1) Coordinate with the applicable state and federal dam regulatory agencies.

(2) Develop and maintain EAPs for each dam or levee system.

(3) Develop and maintain flooding inundation maps for each site.

(4) Coordinate with local EMA on developing and adhering to a Notification Flowchart.

(5) Coordinate with the local EMA on a site or system-specific notification, alert, and warning system (sirens, Code Red, etc.).

(6) Provide local EMA with site/system status updates, standard hazard or risk classifications updates, schedule maintenance that may impact the site, etc.

(7) Assess damage to the dam/levee system immediately affected in the impacted area.

(8) Conduct recovery and mitigation activities.

(9) Attend annual meetings with local authorities to review/exercise/validate EOPs, EAPs, and flood inundation maps.

e. Non-Governmental Organizations (NGO).

(1) American Red Cross (ARC).

(a) Acts as the lead agency for shelter facility activities.

(b) Provides personnel and supplies to operate the shelter facilities.

(c) Provides EOC support.

(d) Provides family member location service.

(e) Provides food for evacuees as needed.

(2) Salvation Army. Provides support to shelter facility and feeding operations.

f. Federal.

(1) Federal Emergency Management Agency (FEMA).

(a) Deploy Liaison to SEOC upon request by the state.

(b) Deploy an IMAT and collateral duty personnel to SEOC upon request by the state.

(c) Process pre-declaration requests.

(d) Deploy a Federal Coordinating Officer (FCO) upon request by the state.

(e) Deploy appropriate Mobile Emergency Response Systems (MERS) resources to state if required/requested.

(f) Order commodities for affected states.

(g) Coordinate with ESF#8 to identify and pre-stage appropriate National Disaster Medical System (NDMS) capabilities/caches, National Disaster Medical Assistance Team (DMAT), Disaster Mortuary Operational Response Teams (DMORT), etc.

(h) Coordinate with ESF#9 to identify and pre-stage appropriate SAR capabilities/caches.

(i) Coordinate with ESF#3 to identify and pre-stage appropriate Power Response Teams (PRTs), generators, and other personnel/resources.

(j) As requested, place ambulance/motor coach contract resources on alert and mobilize.

(k) Establish an Air Operations Branch if required/requested.

(l) Determine potentially impacted CIKR and lifesaving/sustaining facilities and estimate potential support requirements.

(m) Monitor state evacuation status.

(n) Coordinate with federal ESF #13 for potential acts of terrorism.

(2) National Weather Service (NWS).

(a) Disseminate warnings such as Dam Break Warnings (FFS), Flash Flood Warnings (FFW), or Areal Flood Warnings (FLW).

(b) Receive, evaluate, and disseminate to the state Primary Warning Points, forecasts, predictions, and other pertinent data regarding the possibility of adverse weather conditions.

(c) Broadcast weather information continuously and warnings as required on the Statewide Weather Broadcast System.

(d) Alert the MEMA Director or the duty officer of all watches and warnings.

(e) An NWS liaison supports 24-hour SEOC operations for Level 3 Activations and above.

(f) Issue statements when weather conditions no longer pose a significant threat.

(3) United States Army Corps of Engineers (USACE). Carry out all FEMA-directed missions, such as but not limited to:

(a) Provide dam and levee technical data and assistance.

(b) Debris removal missions.

(c) Commodities distribution missions.

(d) Temporary roofing missions.

(e) Provide emergency power.

(f) Provide temporary public structure.

(g) Provide LNO to the SEOC, as required.

8. AUTHORITIES AND REFERENCES. The procedures in this Evacuation Support Annex are built on the core coordinating structures of the CEMP and references listed below. The specific responsibilities of each department and agency are described in the respective ESF, Support, and Incident Annexes, internal agency plans, policies, and procedures. See the CEMP Base Plan or the SEOC Operations Section for a comprehensive list of Authorities and References.

a. Robert T. Stafford Disaster Relief and Emergency Assistance Act; amended the Disaster Relief Act of 1974, PL 93-288.
https://www.fema.gov/sites/default/files/2020-03/stafford-act_2019.pdf

b. MS Code, Ann. Â§ 33-15(1972): Mississippi Emergency Management Act of 1995, Title 33-15, et al. [Successor to Mississippi Emergency Management Law of 1980]
MS Code 33-15

c. National Preparedness Goal, September 2015
https://www.fema.gov/sites/default/files/2020-06/national_preparedness_goal_2nd_edition.pdf

d. National Incident Management System, Third Edition, October 2017
https://www.fema.gov/media-library/assets/documents/148019

e. National Response Framework, Fourth Edition, October 2019
https://www.fema.gov/sites/default/files/2020-04/NRF_FINALApproved_2011028.pdf

f. FEMA Incident Action Planning Guide, July 2015
https://www.fema.gov/sites/default/files/2020-07/Incident_Action_Planning_Guide_Revision1_august2015.pdf

g. FEMA Developing and Maintaining Emergency Operations Plan, Comprehensive Preparedness Guide (CPG) 101, Version 3.0, September 2021
https://www.fema.gov/sites/default/files/documents/fema_cpg-101-v3-developing-maintaining-eops.pdf

h. FEMA Emergency Operations Planning: Dam Incident Planning Guide, November 2019
https://www.fema.gov/sites/default/files/2020-08/dam_incident_planning_guide_2019.pdf

i. FEMA Federal Guidelines for Dam Safety, Emergency Action Planning for Dams, FEMA 64 July 2013
https://www.fema.gov/sites/default/files/2020-08/eap_federal_guidelines_fema_p-64.pdf

j. FEMA Federal Guidelines for Dam Safety Risk Management, FEMA P-1025, January 2015
https://www.fema.gov/sites/default/files/2020-08/fema_dam-safety_risk-management_P-1025.pdf

k. FEMA Emergency Action Planning for State Regulated High-Hazard Potential Dams, Finding, Recommendations, and Strategies, FEMA 608, August 2007
https://damfailures.org/wp-content/uploads/2015/06/Emergency-Action-Planning-for-State-Regulated-High-Hazard-Potential-Dams.pdf

l. DHS Dams Sector Crisis Management Handbook, A Guide for Owners and Operators, 2021
https://www.cisa.gov/sites/default/files/publications/Dams%2520Sector%2520Crisis%2520Management%2520Handbook%2520FINAL%25202021_508c.pdf

m. FERC Security Program for Hydropower Projects: Revision 3A. Division of Dam Safety and Inspections

https://ferc.gov/dam-safety-and-inspections/security-program-hydropower-projects-revision-3

n. USACE Guidance for Emergency Action Plans, Incident Management and Reporting, and Inundation Maps for Dams and Levee Systems, January 2018
https://www.publications.usace.army.mil/Portals/76/Publications/EngineerCirculars/EC_1110-2-6074.pdf

o. USACE A Guide to Public Alerts and Warnings for Dam and Levee Emergencies, April 2019
https://www.publications.usace.army.mil/Portals/76/Users/182/86/2486/EP%201110-2-17.pdf?ver=2019-06-20-152050-550

p. MEMA Response Framework, June 2023
MEMA SharePoint/Response Framework

9. REVIEW AND MAINTENANCE. This Annex will be continuously reviewed and exercised to evaluate the state's and political subdivisions' ability to execute response and recovery operations and support tribal, local, and municipal emergency management agencies. Directors of primary state agencies are responsible for maintaining internal policies, plans, SOPs, checklists, and resource data to ensure a prompt and effective response to a disaster in support of this Annex. For training purposes and exercises, the MEMA Executive Director may activate this Annex as deemed necessary to ensure high operational readiness.

MEMA will revise this Annex on a biennial basis. The revision will include testing, reviewing, and updating the document and its procedures. This Annex will be updated every two years, or as necessary, to incorporate new presidential or state directives, legislative changes, and procedural changes based on lessons learned from exercises and actual incidents. This Annex will be rewritten every four (4) years.

MEMA coordinates updates, modifications, and changes to the Annex. Heads of state agencies with ESF coordinator responsibility will periodically provide information regarding changes with available resources, personnel, and operating procedures. Recommended changes will be submitted to MEMA for approval and distribution. Submit recommendations via e-mail to preparedness@mema.ms.gov.

This Annex applies to all state agencies, state boards, state commissions, and state departments assigned emergency responsibilities and to all elements of local government in accordance with current law and Executive Orders (EOs).