

EMERGENCY ACTION PLAN

FOR

LAKE LORMAN

STATE ID MS02270

MADISON COUNTY, MISSISSIPPI

AUGUST 2023

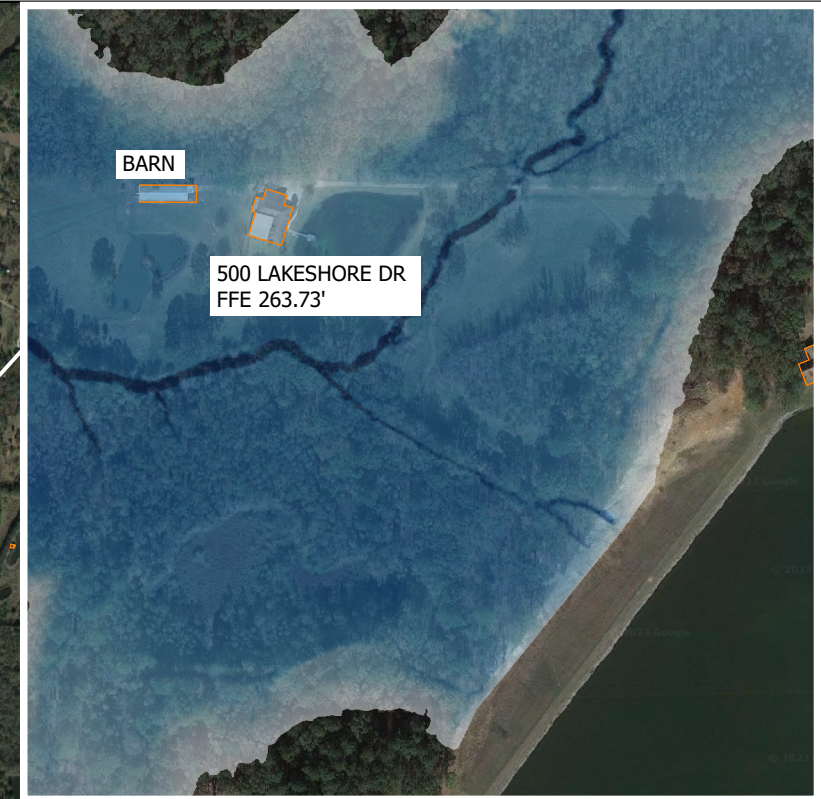
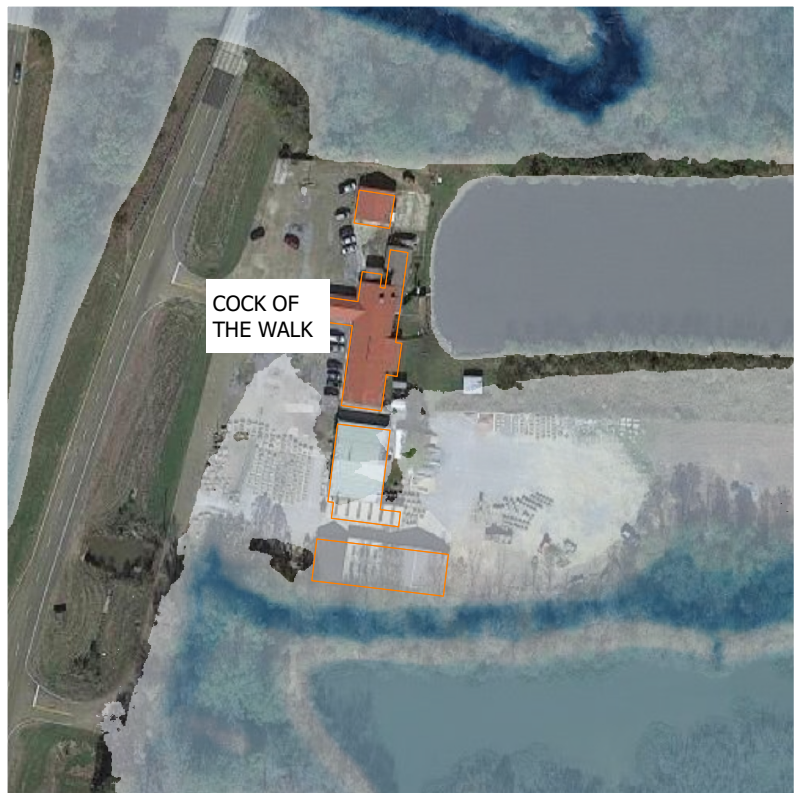
Access to the Dam during Emergencies:

Primary access to the site is by Westline Drive off Coker Road. The dam may also be reached by Lakeshore Drive off Coker Road. None of these routes are susceptible to inundation in the event of dam failure.

Prepared by:
McMaster & Associates, Inc.
212 Waterford Square, Suite 300
Madison, MS 39110
(601) 605-1090

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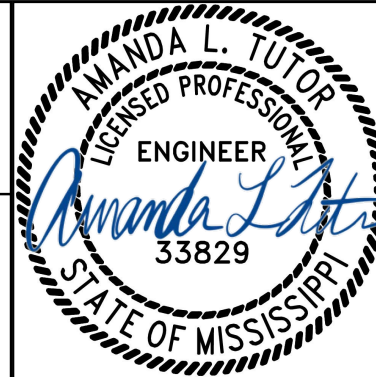
Job Number:
M-2867-3

Reviewed By:
Amanda Tutor, P.E.

Prepared By:
Lanie McGuire, E.I.
August 4, 2023

LAKE LORMAN DAM

BREACH INUNDATION



NEWS RELEASE:

The owners of Lake Lorman Dam have announced that it is in imminent danger of failure. The dam is located about 2.8 miles east of Pocahontas Road off Coker Road, in Lake Lorman Subdivision, between Westline Drive and Lakeshore Drive.

ROADS TO BE CLOSED:

Joe Coker Road between Highway 49 and Coker Lane.
Lanewood Road from Joe Coker Road to roughly 200 feet south on Lanewood Road.

RESIDENCES TO BE EVACUATED:

Madison County:

1. 500 Lakeshore Drive
Madison, MS 39110

Hinds County:

2. 3640 Joe Coker Road
Jackson, MS 39213
3. Hearn Road, House number unassigned,
House situated on Parcel 2853-177
4. Jackson Stone
13550 US 49
Jackson, MS 39209

I. EMERGENCY DETECTION, EVALUATION AND CLASSIFICATION

Upon discovery of a problem at a dam, the dam owner and/or on-site personnel should decide which category the emergency situation falls under. **If there is any uncertainty about the classification of the emergency, the situation should be classified as a Warning, unless there is an uncontrolled release of water which would constitute an Emergency.** The four dam emergency classification types are outlined below:

- **Emergency:** Uncontrolled Release of Water
- **Warning:** Failure Could Happen at Any Time
- **Watch:** Potential for Failure Exists
- **Advisory:** Conditions that could lead to a failure situation have occurred

These conditions are further defined in the following sections.

Emergency – Uncontrolled Release of Water

The dam is failing and there is an uncontrolled release of water.

On-Site Personnel Plan of Action

Move a safe distance away from the dam and call the following people and explain to them that the dam is failing, and downstream residents should be evacuated immediately:

- a. 911
- b. Madison County Emergency Manager (601-859-4188) and Hinds County Emergency Manager (601-960-1476). The county emergency managers should notify the National Weather Service (601-939-2786) to issue a Flash Flood Warning. In the case of dams with large populations at risk, the NWS may issue a Flash Flood Emergency.
- c. Downstream Residents to be evacuated as shown on page 4 of this plan.

Warning – Failure Could Happen at Any Time

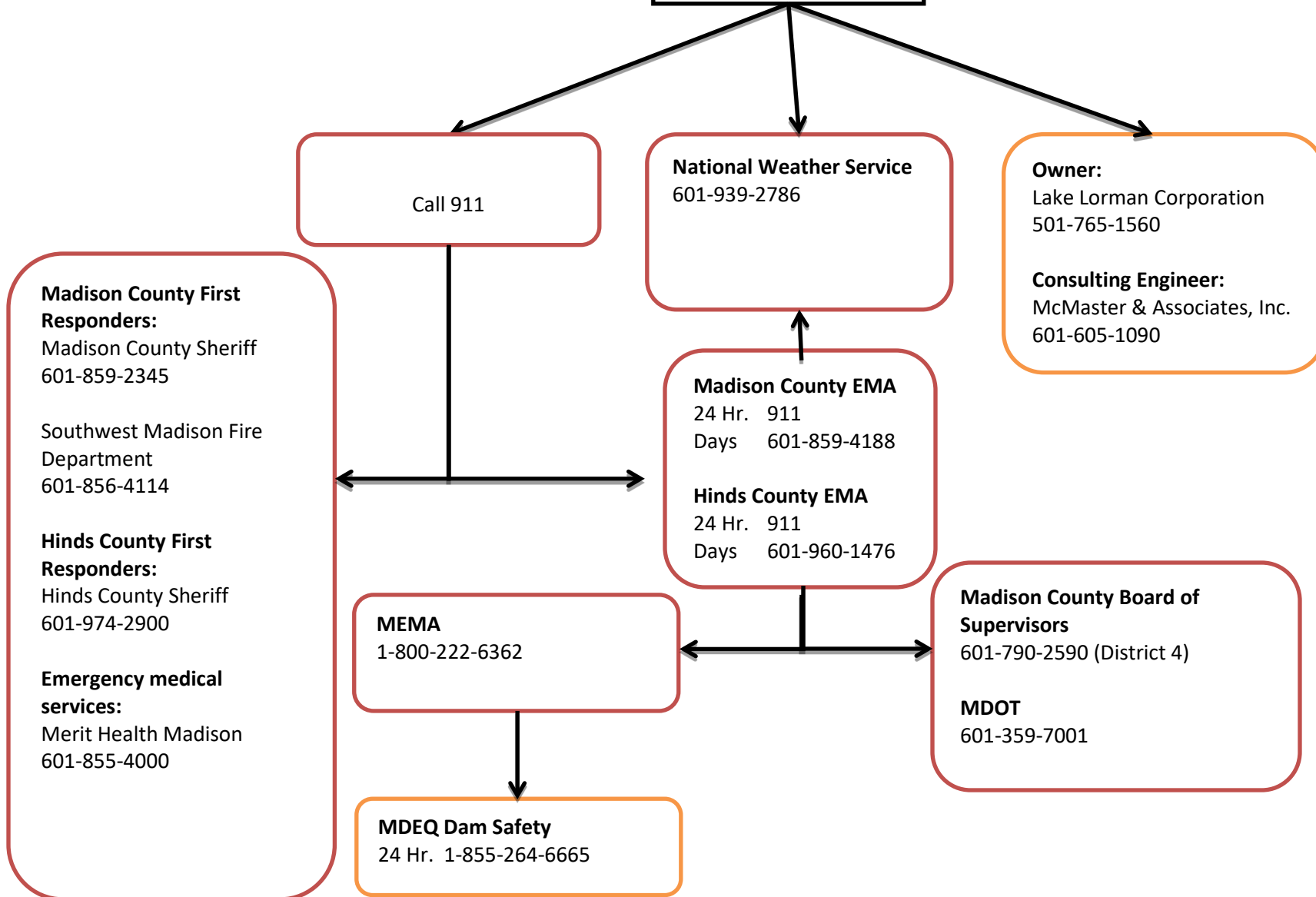
Common warning signs are:

- a. whirlpool developing in the lake near the dam
- b. a major slide of material in either face of the dam that reaches the top of the slope or extends into the crest of the dam
- c. overtopping
- d. break in waterline located in the dam

On-Site Personnel Plan of Action

- 1) Make the necessary phone calls as shown in the flowchart on Page 7. During the calls do the following:
 - a. Explain that the dam could fail at any time.
 - b. State you are classifying this as an imminent failure. In this case, a Flash Flood Warning should be issued by the National Weather Service. If needed, relay the News Release on Page 4 of this plan.
 - c. Refer them to the inundation map and downstream contact list for this EAP to determine which area should be evacuated.
 - d. Give them the name and number of someone who can be called back for any follow-up questions.
- 2) If possible, notify anyone in the nearby vicinity of the dam to evacuate and move back a safe distance from the dam and inundation area.

Warning



Watch - Potential for Failure Exists

Common warning signs are:

- a. seepage found that increases in flow or new seepage points develop while situation is being monitored
- b. sand boils (water exiting the ground surface with enough velocity to cause the soil/water mixture to appear to be boiling) that develop downstream of the dam, note that a boil that steadily increases in diameter or appears to be boiling more vigorously because of rapidly increasing flow would move the situation from a Watch to an Emergency
- c. piping (a concentrated flow of water with sufficient velocity to transport soil particles – generally indicated by an identifiable hole, or “pipe”, surrounded by a cone of soil) note that an increase in the diameter of the “pipe” or rapidly increasing flow would move the situation from a Watch to an Emergency
- d. slides of material that only affect the face of the dam and have not affected or progressed into or under the crest of the dam, or gullies forming in the face of the dam sinkholes found in the dam
- e. Water levels nearing the top of the dam and steadily increasing. This includes activation of the emergency spillway if downstream residents could be flooded.

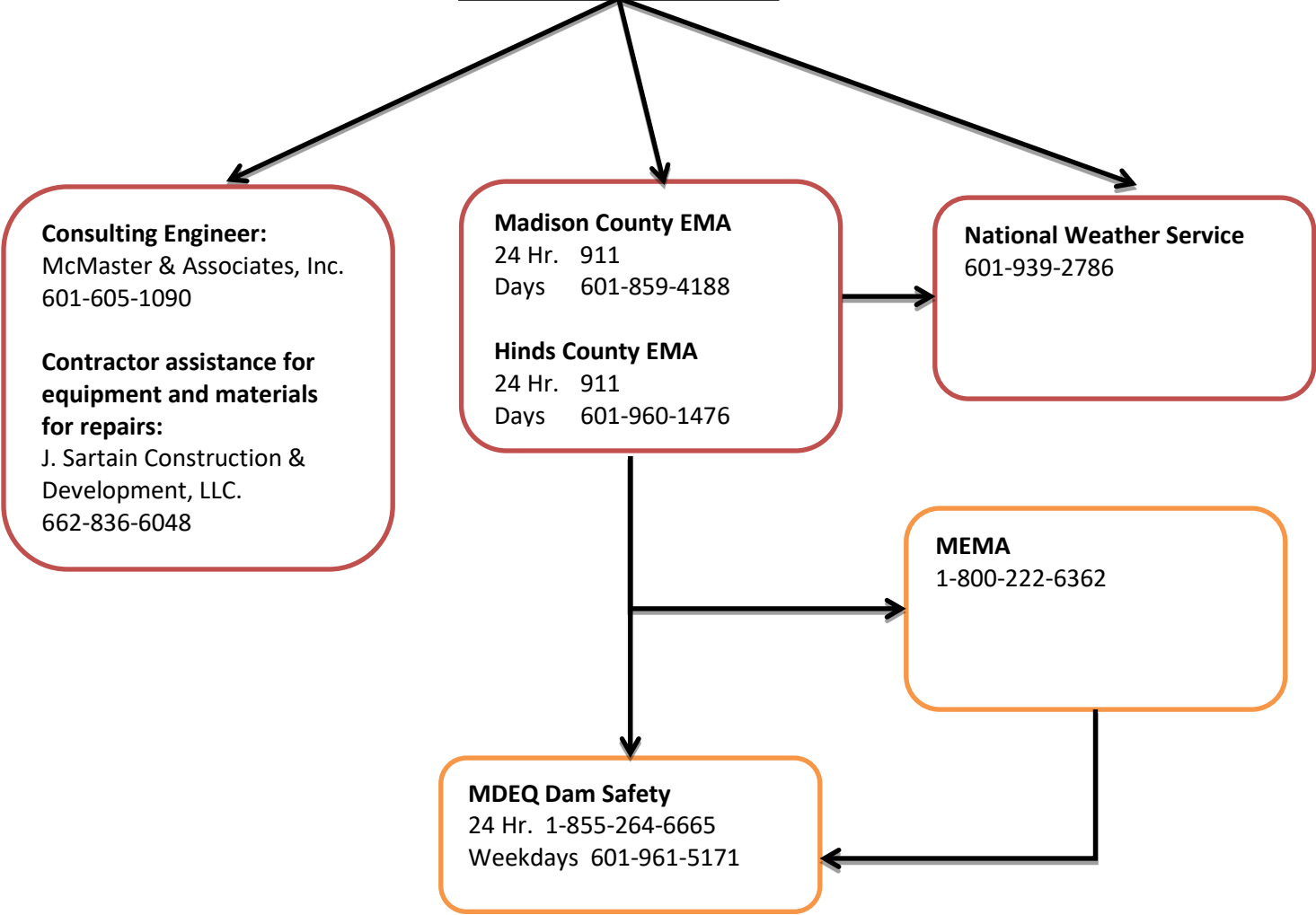
NOTE: Discovery of a sand boil or evidence of piping in the dam face or in the vicinity of the toe of the dam should cause the observer to immediately expand the area of surveillance to include all areas, particularly areas that are at a lower elevation than the observed problem, within 200 to 250 feet of the downstream toe of the dam. Also, if an earthquake occurs and registers more than 6.0 in the general area of the state where your dam is located then the dam should be inspected as soon as possible and the lake level drawn down 1/3 to 1/2 of the greatest depth of the lake until an engineer can inspect the dam for damage.

On-Site Personnel Plan of Action

- 1) Make the necessary phone calls as shown in the flowchart on Page 10. During the calls do the following:
 - a. Explain the problems with the dam.
 - b. State you are classifying this as a potential failure. In this case, a Flash Flood Watch should be issued by the National Weather Service. If needed, relay the News Release on Page 4 of this plan.
 - c. Refer them to the inundation map and downstream contact list for this EAP to determine which area should be notified of the potential need for evacuation. In some cases, the County EMA may wish to issue a voluntary evacuation notice.
 - d. Give them the name and number of someone who can be called back for any follow-up questions.
- 2) Work with the Consulting Engineer, Contractor, and MDEQ Dam Safety to try and prevent failure of the dam.

Note: At any point if conditions worsen at the dam, this emergency should immediately be re-classified as a Warning. On-Site personnel should dial 911 and notify the National Weather Service to issue a Flash Flood Warning.

Watch



Advisory – Conditions that could Lead to a Failure Have Occurred

Some conditions that could lead to a failure:

- a. Seepage that has recently developed.
- b. Excessive rainfall that may exceed the capacity of the spillways. Lake Lorman Dam should be monitored when rainfall amounts exceed 9.2 inches in 24 hours.

On-Site Personnel Plan of Action

- 1) Make the necessary phone calls as shown in the flowchart on Page 12. During the calls do the following:
 - a. Explain the problems with the dam. If this advisory is due to excessive rainfall, you should also contact the National Weather Service at 601-939-2786.
 - b. Give them the name and number of someone who can be called back for any follow-up questions.
- 2) Work with the consulting engineer and MDEQ Dam Safety to determine a path forward.

Note: If water levels are rapidly rising due to a storm event that is expected to exceed the capacity of the spillways, this emergency should immediately be re-classified as a Warning and the steps shown under the Warning section of this EAP should be implemented. If seepage is increasing in flow or new seepage points are developing, this emergency should be re-classified as a Watch and the steps shown under the Watch section of this EAP should be implemented.

Advisory

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graph TD; A[Advisory] --> B["Consulting Engineer:  
McMaster & Associates, Inc.  
601-605-1090"]; A --> C["MDEQ Dam Safety  
24 Hr. 1-855-264-6665  
Weekdays 601-961-5171"]; C --> D["Madison County EMA  
24 Hr. 911  
Days 601-859-4188  
  
Hinds County EMA  
24 Hr. 911  
Days 601-960-1476"]; C --> E["National Weather Service  
601-939-2786"];
```

Consulting Engineer:
McMaster & Associates, Inc.
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National Weather Service
601-939-2786

II. LOCATION AND DESCRIPTION OF DAM AND OUTLET WORKS

Lake Lorman Dam is located east of Pocahontas Road in Madison County, Mississippi. The dam owner is Lake Lorman Corporation (hereafter referred to as “the owner”). The primary function of the lake is recreation for homeowners. The dam was originally constructed in 1965 and modified in 2022. The dam and lake characteristics were determined by topographic and field surveys and checked against the as-built plans. At its normal pool elevation of 300.65 feet, Lake Lorman Dam impounds approximately 2300 acre-feet with a surface area of about 170 acres.

The principal spillway is located near the north (right) end of the dam. The principal spillway consists of a 36-inch diameter steel riser and a 24-inch diameter steel through pipe and will carry a maximum flow of 46.62 cubic feet per second (cfs). The emergency spillway is located on the south (left) abutment. The emergency spillway consists of a vegetated earthen channel with a bottom width of 36-ft at an elevation of 303.50-ft and will carry a maximum flow of 422.85 cfs. The lake drain is located at the center of the dam with a valve.

See page 14 for an aerial image of the dam with the spillways labeled.



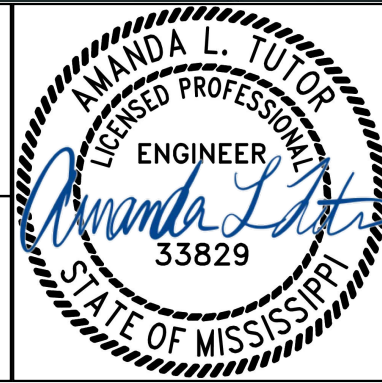
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Reviewed By:
Amanda Tutor, P.E.

Prepared By:
Lanie McGuire, E.I.
July 31, 2023

LAKE LORMAN DAM

OUTLETS



III. DAM BREACH ANALYSIS

For the dam break analysis, the computer software GeoHEC-RAS 2D was used. This program simulates a breach, its resulting flood peak, and uses unsteady flow principles to route the flood through the downstream valley.

The top-of-dam elevation was used for “sunny day” failure.

The results of the downstream flood routing were used to establish the limits and plot the inundated areas for emergency conditions associated with the dam break discharge. The map shown on Page 2 depicts the area which would be flooded should the hypothetical emergency occur. Shown below is a list of the inputs and boundary conditions used for the computer model:

Geometry:

As-built plans were used to generate the terrain of the dam and the most current LiDAR (years ranging from 2016-2020) data available through MARIS was used to generate the terrain downstream of the dam.

Upstream Boundary Condition:

Lake Lorman was modeled as a storage area using approximate contours based on extending the natural surrounding ground slope to the bottom of the dam. The inflow breach hydrograph was created using HydroCAD dam breach simulation. The hydrograph has a peak flow of 71,394.57-cfs at 00:48 hours.

Downstream Boundary Condition:

Normal depth was used with a calculated 0.00206 ft/ft slope.

Breach Data:

Bottom width of breach (ft)	118
Formation time (hr)	0.79
Side slopes of breach	1H : 1V
Water surface elevation at failure (ft)	305.50
Peak breach flow (cfs)	71,394.57
Time of peak breach flow (hr:min)	00:48
Simulation Time (hr:min)	02:21

IV. GENERAL RESPONSIBILITIES UNDER THE PLAN

A. Dam Owner/ On-Site Personnel Responsibilities

Upon notification or discovery of the potential for an emergency situation, the dam owner and/or On-Site Personnel should take the appropriate action as outlined in the Emergency Detection, Evaluation, and Classification section of this plan.

B. Responsibility for Evacuation

Warning and evacuation planning are the responsibilities of local authorities who have the statutory obligation. Dam owners should not assume, or usurp, the responsibility of government entities for evacuation of people. However, there may be situations in which routine notification and evacuation will not suffice, as in the case of a resident located just downstream of the dam. In this case, the dam owner should arrange to notify that person directly. This procedure should be coordinated with the appropriate public officials before an emergency situation develops.

C. Responsibility for Duration, Security, Termination, and Follow-Up

The county EMA should perform on-site monitoring of the situation at the dam and keeping local authorities informed of developing conditions at the dam from the time he arrives on site until the emergency has been terminated. The state dam safety program, in consultation with the county EMA, is responsible for declaring that the emergency at the dam is terminated. Following that declaration, the county EMA is responsible for termination of the disaster response activities.

D. Exercising and Review of the EAP

A review of the adequacy of the EAP shall be conducted annually. Any comments from the evaluation will be used to update the EAP. The EAP should be updated promptly after each change in involved personnel or their telephone numbers, or after completion of a scheduled exercise. The EAP should be exercised annually.

APPENDIX:
APPROVALS AND ACCEPTANCE OF THE EAP

LIST OF EAP HOLDERS

DATE: 8/28/2023

By my signature below, I certify that I have a copy of the EAP and I understand my role, or the role of my agency, in implementing the EAP for Lake Lorman Dam (MS02270), if the need arises.

COPY #	EAP HOLDER	SIGNATURE
1.	Lake Lorman Corporation – Dam Owner	_____
2.	Madison County EMA	_____
3.	Hinds County EMA	_____
4.	MDEQ, OLWR, Dam Safety Division	<i>Matt [Signature]</i>
5.	Madison County Sheriff Department	_____
6.	Hinds County Sheriff Department	_____
7.	Southwest Madison Fire Department	_____
8.	McMaster & Associates, Inc.	<i>Amanda [Signature]</i>
9.	National Weather Service – Jackson	_____
10.	911 Call Center	_____

SIGNATURES OF AGREEMENT

We, the undersigned, on the date indicated, have reviewed the requested support activity in the Emergency Action for Lake Lorman Dam. Our support action will be executed in accordance with existing standard operating procedures and/or municipal or county emergency operation plans.

Madison County EMA

Date

Madison County 911 Call Center

Date

Hinds County EMA

Date

Hinds County 911 Call Center

Date

APPROVAL OF THE EAP

The Emergency Action Plan for Lake Lorman Dam (MS02270) is hereby approved.

Dam Safety Division
Mississippi Department of Environmental Quality

Date