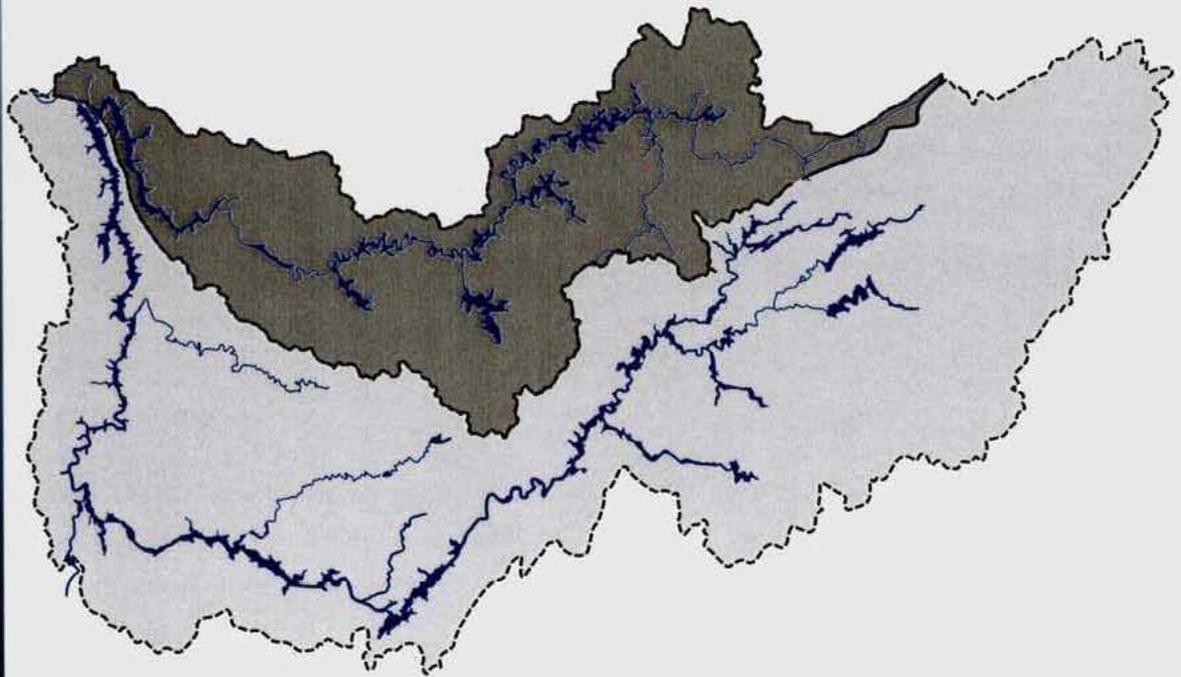


# **Cumberland River Waterway** **Management Plan**

A Joint Project of the Tennessee-Cumberland  
Waterways Council, U.S. Army Corps of Engineers,  
and the U.S. Coast Guard



October 2003

This document contains time dependent material  
and is revised annually.

## FOREWORD

The Cumberland River Waterway Management Plan (CRWMP) has been jointly prepared by the marine industry, U.S. Coast Guard (USCG), and the U.S. Army Corps of Engineers (USACE). This plan is intended to facilitate the safe and orderly movement of barge traffic during high and low water navigation crises on the Cumberland River.

In September 1995 the Mississippi River Industry Executive Task Force in conjunction with the USCG and the USACE chartered the Mississippi River Crisis Response Working Group to develop a plan for responding to navigational emergencies on the Mississippi River. The plan prepared by the Mississippi River Crisis Response Working Group was called the Mississippi River Crisis Action Plan (MRCAP).

This document is analogous to MRCAP with special focus on the unique nature of the **Cumberland River reservoir system. Accordingly, this plan deals with potential navigation emergencies on the Cumberland River waterway.** Towing industry input was invaluable in preparing this document.

The document was designed to be current by annually updating the designated contact persons and their telephone numbers. This is reflected by placing the date through which the document is current on the cover sheet and on APPENDIX I, along with any procedural changes that may have been incorporated.

2003 Revision

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## **1. INTRODUCTION**

This plan provides guidance for marine operations and transportation emergencies on the Cumberland River. Some river emergencies significantly disrupt navigation and may be caused by a natural or man-made disaster, or a combination of both. The goal of the plan is to serve as a guide for officials of the U.S. Coast Guard (USCG), U.S. Army Corps of Engineers (USACE), local Emergency Management Agencies (EMA) and the marine industry to facilitate the safe and orderly movement of barge traffic during navigational crises. Also, the resources of this plan can be utilized to minimize the impacts to waterway users from certain waterway maintenance functions such as lock closures and bridge construction.

Cumberland River Waterway Management Plan (CRWMP) users must realize that each crisis has its own unique set of issues, factors and controlling elements that require constant evaluation and adjustment. Critical to this effort is early and open communication with all parties to assure that response actions reflect fair and equal consideration of the interests of all parties, including the public. The need for effective communications cannot be overemphasized. Timely exchange of information is important, but only if the involved parties have an integrated system to assure the most current data is disseminated.

No plan can replace a clear, logical, and analytical approach to problem solving.

## **2. HYDROLOGY AND METEOROLOGY**

### **2.1 Purpose**

The purpose of this chapter is to provide those persons charged with mitigating the effects on navigation of abnormal water levels on the Cumberland River with basic information on the hydrological and meteorological factors that affect the Cumberland River system and to identify how these factors affect river levels and navigation safety. This chapter also outlines the general philosophy for dealing with navigation safety issues and discusses the tools available to conduct waterway management activities.

#### **2.1.1 Hydrological and Meteorological Factors Affecting Waterway Management**

The Corps manages the flow of the Cumberland River for flood control, navigation, power generation, water quality, and recreation. There are frequently times when special water operations are needed to prevent or minimize flooding. In times of drought, special water operations emphasize conservation to maximize the value of the water to all users.

The Cumberland River system managed by the Corps consists of five mainstream dams with four navigation locks and five tributary dams. The Cumberland River is also connected to the Tennessee River System and the Tombigbee Waterway via the Barkley Canal at River Mile 32.6.

Inflow to the reservoirs is dependent on many factors including water flow, soil moisture, snow cover, precipitation, temperature, and weather patterns. The Corps constantly monitors these factors and forecasts river conditions to ensure adequate preparation for emergency situations.

Numerous variables affect how much water is in the system at any given time. Listed below are some of the key variables the Corps must consider:

1. Base flow: The amount of flow (measured in CFS) along a section of river, usually measured at a dam. The Corps has established a historical average flow rate for each section of the river prior to impoundment of the reservoir. Flow rates are now dependent on generation patterns or minimum flow requirements for the applicable time of year.
2. Soil moisture: The amount of moisture concentrated in the soil. High soil moisture content means a large percentage of new precipitation will not be absorbed into the soil. This will result in increased runoff and a corresponding increase in water levels. Soil moisture averages and current levels are available from the U.S. Geological Survey (USGS) and State water/soil conservation agencies.
3. Precipitation: The amount of rain/sleet, etc. This becomes runoff and impacts water levels in the river systems. The amount and duration of precipitation are equally important factors. Precipitation averages and totals can be obtained from the USGS, the National Oceanic and Atmospheric Administration (NOAA), the National Weather Service (NWS) and State agencies.

### **3. Waterway Management**

#### **3.1 Goal**

The goal of this plan is to facilitate safe navigation during a period of less than optimum conditions. Timely, well designed interventions by USCG and USACE will bring stability and order to the confusion surrounding a flood, drought or other incidents such as spills, emergency lock closures and failure of other navigation related structures and will limit adverse economic impact on local and regional economies. The management of marine traffic during emergencies requires a clear set of goals and a focused plan of action to address associated and often complex issues.

River users must be involved in the decision making process. To ensure issues are addressed in the most efficient manner, working relationships between federal, state and local waterway managers and industry user groups such as the Cumberland River Valley Association (CRVA) and Tennessee-Cumberland Waterway Council (TCWC), and others, should be continuously cultivated and all applicable parties should be a part of the decision making process.

USCG, USACE, and navigation interests must continually monitor hydrological and meteorological reports and the frequency of vessel incidents as indices of navigating conditions. By analyzing developing trends, they can decide when system controls must be implemented to maintain an acceptable level of safety. Section 4 discusses impacts to navigation that waterway managers can expect to occur during high water.

#### **3.2 Marine Transportation Emergency Response Organization**

The waterway users of the Cumberland River and its tributaries have a select group to contact when the need for communications arise. The two governmental organizations that address industry concerns on the Cumberland River are the USCG and USACE Nashville District. With the designation of an Assigned Dedicated Contact Person(s) (ADCP) by the industry, an ad hoc group consisting of industry, USCG, and USACE can respond promptly during a navigation transportation emergency or disruption on the Cumberland River. At the outset of such an emergency, or as soon as practicable, the USCG will contact USACE and attempt to contact all applicable towing operators. However, in addition to the Corps, a minimum of three towing industry operators from APPENDIX I that can be reached by the USCG may serve as initial members of the response team for communications purposes.

### **3.3 System Management and Control**

Waterway management intervention must be taken when a compelling need exists to preserve the safety of navigation and the environment. Careful analysis of the risks must be conducted in each case, and controls should be exercised only to the extent necessary to mitigate these risks. In all cases, the controls imposed should be the least restrictive necessary. The degree of control can be escalated as conditions warrant. Control actions range from passive enforcement actions such as advisories, to drastic enforcement actions such as the temporary cessation of all navigation on the most seriously affected sections of the river system. When an intervention must be conducted on one part of the Cumberland River, other areas of the river must be considered. Care must be taken to recognize any restriction put in place to address local safety issues and undue hardship on vessels and shippers on other parts of the river system.

#### **3.3.1 Safety Advisory**

The simplest form of intervention is a navigational safety advisory. It relies on the voluntary compliance of industry to limit risk and prevent vessel casualties. USCG advisories are usually issued after consultation with the Corps. Advisories can be originated by the USCG or self imposed by industry, and disseminated as Broadcast Notice to Mariners (BNTM), USACE bulletin board, River Industry Bulletin Board (RIBB), over the industry facsimile system, or any combination of these methods. The purpose is to advise the marine industry of the existence of hazardous conditions and provide recommendations for safe navigation. Advisories can also be used to notify the marine industry of the Captain of the Port's (COTP) intention to take action in respect to developing navigation conditions. Advisories are important tools that can provide marine interests time to adjust their operations to avoid future difficulties or potential safety implications.

#### **3.3.2 Safety Zone**

Due to the degree of control of Cumberland River flows by the Corps, the most probable used intervention activity will be the establishment of a safety zone by the COTP that imposes vessel-operating restrictions. Consultation and deliberation with the Corps and industry user groups usually precede implementation of a safety zone by the USCG. A safety zone entails the control of a portion of the river, a tributary or a harbor and enables the USCG to control access and/or prescribe operating restrictions on vessels seeking to navigate in the area. This approach can be applied to limited or large geographical areas and may involve simple or complex restrictions including but not limited to:

- Minimum horsepower requirements per barge.
- Maximum draft limits.
- Maximum tow sizes.
- Specific tow configurations.
- Length and breadth limits.
- Safe speed zones, no passing zones or no meeting zones.
- Helper or towboat requirements.
- Traffic separation schemes .
- Reporting requirements.
- Tank barge prohibitions or the exclusion of all vessels from the safety zone.

The establishment of a safety zone may include active control of vessel traffic through an area, or it may be conducted passively, relying on voluntary compliance to limit risk. Safety zones using passive control have been imposed on other waterways during periods of high or abnormally low water and when local construction or pollution response cleanup operations could be impacted by passing traffic.

#### **3.3.3 Vessel Traffic Control System**

During the most serious maritime incidents, safety zones are often used in conjunction with the establishment of a temporary vessel traffic control system. These organizations are joint government/industry organizations established on a temporary basis to actively facilitate the safe movement of traffic. They can be used to provide either advisory or mandatory control of traffic and have been used successfully in numerous maritime incidents. These Traffic Control Centers (TCC) are manned by a combination of government and industry personnel under the control of the COTP or Coast Guard District Commander depending on the scope, nature and duration of the incident.

### 3.4 Communications

A special communication arrangement may be required for waterway users if one or more of the following conditions exist:

- There is an extended period of navigation stoppage and conditions are expected to worsen.
- The industry is experiencing difficulty in gaining timely information on river conditions.
- Severe congestion of harbors, terminals and locks.
- An environmental emergency has developed; i.e., chemical or petroleum spill.
- Emergency closure of a lock.
- Failure of a navigation-related structure; i.e., downed bridge or power line, ruptured pipeline, etc.

Communication methods and preferences are discussed in Section 8.

### 3.5 Waterway Management Planning

The response to a transportation emergency can be broken down into four distinct phases: Watch Phase, Action Phase, Emergency Phase, and Recovery Phase. Key events are associated with each phase and specific actions must be executed to ensure that safe and efficient responses are conducted. Specific actions for each phase are listed in Section 4.1, Marine Transportation Emergency Response Cycle and criteria enumerated in APPENDIX II. Each phase is defined as follows:

## WATCH PHASE

**Situation:** The Watch Phase is the start of a waterway management activity. It exists when navigation conditions may be affected by Corps water control actions or have markedly deteriorated and weather forecasts predict continued abnormal rainfall and stream flow conditions. The COTP, local USACE personnel, and local river user groups will be the first to predict or become aware of difficulties being experienced by commercial navigation interests. This group must confer and decide if the developing scenario has the potential to evolve into a transportation emergency. If the situation has the potential for escalating, then a notice of intent to go to the Action Phase should be issued.

## **ACTION PHASE**

**Situation:** The Action Phase is the first condition, when active traffic advisories are issued and extraordinary information coordination becomes necessary. Usually during the action phases, some vessels are navigating with difficulty and local navigation advisories and safety zones are defined to address hazardous areas. There exists a high probability that weather forecasts and hydrological projections indicate conditions will continue to worsen. The Incident Action Plan (IAP) is developed for the subject section of the waterway. The plan is prepared by the USCG in conjunction with USACE, TRVA, and TCWC

**Incident Action Plan:** . The IAP will indicate the goals of the waterway management action and explain the precedence in which operating restrictions will be implemented. Based on the goals of the IAP appropriate Operations Orders (Op Order) will be issued. This will ensure that if a transportation emergency develops, coordinated actions will be taken.

## **EMERGENCY PHASE**

**Situation:** The Emergency Phase starts when areas must be closed to traffic, or when active vessel control is essential to avert casualties or maritime accidents. During the Emergency Phase, river conditions and ATON reliability are significantly deteriorated, severely restricting navigation in certain areas and possibly requiring the cessation of navigation. Weather reports and hydrographic data indicate conditions will be abnormal for a protracted period. The potential for casualties is high and maximum caution should be observed. The Coast Guard Aids to Navigation ATON system is deteriorating and USCG river tenders cannot meet the demands for marking the river. The USCG will activate the Traffic Control Center (TCC) to coordinate the implementation of the IAP.

## **RECOVERY PHASE**

**Situation:** The Recovery Phase starts once limited navigation can be resumed on the affected section of river system. It is characterized by improving navigation and weather conditions, rivers returning to normal stages and re-establishment of the ATON system. In the early part of the Recovery Phase, traffic may move at reduced capacity under the active control of the USCG. As conditions improve, operating restrictions are gradually removed and navigation resumes without active direction. This phase ends when active management is no longer required and navigational advisories are used in lieu of operating restrictions. The USCG will announce the end of the TCC and will complete documentation of the event.

APPENDIX II provides additional information on the actions to be taken during the Watch, Action and Emergency phases of high water events

APPENDIX III addresses the concerns during extended periods of low water. Due to the nature of the low water conditions, only Watch Phase criteria are addressed.

### **3.6 Emergency Waterway Management**

The complexity of the river system and the number of factors involved in its management make it essential that a proactive approach be taken concerning waterway management activities. To ensure prevention and response activities are conducted most efficiently, it is essential that river users and managers participate in the decision-making process. These users should meet regularly (such as the semiannual Nashville District Navigation meetings) to review existing conditions, assess the possibility of future emergencies, and review contingency planning.

#### **4. WATERWAY MANAGEMENT ISSUES ASSOCIATED WITH HIGH WATER**

The purpose of this section is to list the impacts waterway managers can expect during a high water event. High water or flood conditions will be marked by deterioration of navigating conditions due to swift currents, heavy debris flow, and the degradation of the ATON system. These conditions may result in vessel casualties, pollution incidents and barge breakaways. Additional impacts of a high water event are listed below:

##### **IMPACTS ON NAVIGATING TOWS**

- Vessels navigating against the current face the potential for stall outs and loss of control.
- Vessels have difficulty arranging to meet and pass due to effects of the current.
- Heavy debris flow causes damage to rudders and propellers, as well as damage to barges.
- Vessels have difficulty approaching lock walls.
- Landings and passages through bridges become more difficult to navigate due to abnormal drafts and currents, increasing the possibility of allision incidents to bridge fendering systems.
- Close quarter maneuvers and tow building are more difficult.
- Downbound vessels have difficulty controlling their speed, complicating close aboard maneuvering during passing situations.
- Lock approaches by downbound tows are influenced by abnormal out or in drafts that lead to potential increase in allisions with lock structures.
- High currents and subsequent full power maneuvers over stress tow rigging, increasing the possibility of tow breakups.

##### **IMPACTS ON MOORED, FLEETED VESSELS, AND FACILITIES**

- Fleet anchors and dead men are strained and undermined by high flow and current, increasing the potential for breakaways.
- Tow building and midstream operations become difficult. Fleeting operations require increased monitoring to prevent breakaways.
- Harbor activity decreases and a lesser number of vessels are available to respond to harbor emergencies.
- Loading and unloading facilities become inactive due to crane limitations.
- Increased fleet congestion.
- Increased demand by river-dependent industries for raw material/stock.
- Large passenger vessels experience difficulty in maneuvering.

- Requests by shoreline facilities for passage or critical cargoes.

## **IMPACTS WHEN NAVIGATION IS HALTED**

- Vessels trapped in the closure area require replenishment of fuel, potable water, and groceries.
- Local law enforcement and relief agencies request small boat transportation to deliver aid.
- Fleets require line boats to assist in maintaining security.
- Tension may develop between landowners and fleeted or passing vessels.
- Recreational boaters and marinas operate despite river closure.

### **4.1 Marine Transportation Emergency Response Cycle**

The purpose of this section is to provide guidance for planning and executing waterway management intervention actions during a marine transportation emergency.

The response to a transportation emergency can be broken down into four distinct phases: Watch Phase, Action Phase, Emergency Phase, and Recovery Phase. Key events are associated with each phase and specific actions must be executed to ensure that safe and efficient responses are conducted.

## **WATCH PHASE**

When a large-scale transportation emergency is imminent USCG, USACE, and transportation officials should:

1. USCG will arrange the initial conference call between the industry, CG, USACE, etc., when it is anticipated that navigation conditions will worsen.
2. Activate previously assigned dedicated contact persons and support staff.
3. Notify affected parties the emergency communication network is being activated.
4. Determine resource and logistic needs.
5. Establish a briefing schedule.
6. Post notice on the River Industry Bulletin Board (RIBB) on the Internet of potentially deteriorating navigation conditions on the Cumberland River (after the USCG has issued a BNTM).

## **ACTION PHASE**

This is the point, when USCG, USACE, and transportation officials have determined that a large-scale transportation emergency exists. They should:

1. Update information from the Watch Phase and activate more frequent communication.

2. Convene a joint conference to determine the impact of anticipated scenarios so that the best possible alternative may be selected in advance of actual implementation.
3. Issue an advisory to affected waterway users that reflects the situation and anticipated actions.
4. The USCG drafts a news release and navigational advisory to announce safety zone implementation.
5. Augment staff (if necessary) for previously assigned dedicated contact persons.
6. Establish an information system for gathering pilot input on navigating conditions via industry.
7. Increase surveillance to capture real time pictures of river conditions.
8. The USCG issues a news release outlining the crisis situation, the establishment of the Traffic Information Center (TIC) and planned intervention activities.
9. Issue a BNTM and revise notice for the River Industry Bulletin Board (RIBB) on the Internet of potential actions by the COTP for the Cumberland River.
10. Initiate development of policies for vessel queuing, test tow procedures, special movements, vessel replenishment and reduced crewing.
11. The COTP will establish a safety zone in preparation for the cessation of navigation within the affected area.
12. The USCG issues regular news releases, navigation advisories (BNTM) and briefings to ensure a continuous flow of information to all interested parties. The RIBB is updated.

## **EMERGENCY PHASE**

During this phase, USCG, USACE, and transportation officials have determined that a large-scale transportation emergency exists. They should:

1. Examine the crisis and update information from the Action Phase.
2. Issue notices implementing safety zones.
3. Issue waivers to vessels needed to maintain safe harbor operations.
4. Discuss imminent operations and revise the Op Order as necessary.
5. Post notice on the RIBB Internet page of situation and the actions taken. The USCG issues BNTMs.
6. The USCG issues a news release explaining the situation and the actions taken.
7. Initiate traffic management in preparation for the restart of operations.
8. Make preparations for initiating test tows and queuing systems.
9. Continue communications among USCG, USACE, and transportation officials to brief them on the situation and the proposed traffic start-up plan.
10. Continue information gathering from overflights, industry vessel location reports and surface patrols.

11. Prepare a briefing for the TRVA/TCWC and other applicable entities on river conditions necessary to resume navigation and the restrictions that are anticipated once traffic resumes.
12. Obtain concurrence between federal, state and local governments to restart navigation.
13. Determine sufficient aids to navigation are in place to permit resumption of navigation.
14. If warranted establish "trigger" river stages for the start of a "test tow" program and the eventual resumption of limited traffic.
15. If the test tow proves successful, traffic resumption efforts should move forward.
16. Use the data and experience gained in the test tow program to establish tow size and limits for the eventual restart of traffic.

## **RECOVERY PHASE**

During this phase USCG, USACE, and transportation officials have determined that a large-scale transportation emergency no longer exists. They should:

1. Continue with telephone conferences if warranted to examine the crisis and update information in the Emergency Phase.
2. Unless otherwise indicated, provide updates through news releases, BNTM and Internet site updates.
3. Evaluate operating restrictions on a recurring basis.
4. Maintain any imposed operating restrictions and issue updated navigational advisories as necessary.
5. Announce the end of the TIC through news releases, BTNM's and other means possible (i.e. RIBB).
6. Conduct a debrief of the operation to capture lessons learned.
7. Draft an after action report and incident history to be used in refining the CRWMP.
8. Collect and archive pertinent records of the response.
9. Return the assigned dedicated contact persons to their normal functions.

### **5. LOW WATER**

During periods of low water navigation may be constrained by the amount of water the Corps can make available. Tows may encounter reduced channel widths and draft limitations. During winter drawdowns for flood control, the Corps augments flows to facilitate commercial traffic. APPENDIX III LOW WATER provides the pertinent information.

### **6. ENVIRONMENTAL OR OTHER EMERGENCIES**

At times situations develop that are not related to weather. Bridge construction accidents, downing of electrical transmission lines or chemical or petroleum spills may require navigation interruption by the USCG. During these periods the USCG has control of the situation and makes the necessary decisions. Pertinent information about these events is distributed using the communications guidelines of the CRWMP.

## **7. AUTHORITIES AND RESPONSIBILITIES**

The successful management of any traffic crisis is dependent on the cooperation of the waterway system participants. These include agencies of the federal government, state and local emergency management agencies, and industry groups. This chapter identifies the key organizations in these areas, outlines their authorities and responsibilities and explains their involvement with traffic management during a river crisis.

### **7.1 Federal Agencies**

There are two federal agencies primarily responsible for actions relating to navigation on the Cumberland River --- USCG and USACE.

Federal law provides the requisite authority for establishing and maintaining a clear navigational path throughout U.S. territorial waters. Included as part of a national waterway system is the Cumberland River and its tributaries which are part of the inland waterway system. Primarily, the USCG regulates navigation on these "navigable waters of the United States." The USACE provides technical advice to the USCG to enable them to properly evaluate and make decisions on navigation safety matters. The Corps is responsible for authorizing waterway projects on the Cumberland River, evaluating, and maintaining navigation facilities and channels and directing emergency flood control operations.

#### **7.1.1 U.S. Coast Guard**

United States Coast Guard: Title 14, USC, defines USCG roles and responsibilities in establishing and maintaining the safety of ports and waterways. 33 CFR 165.20 gives COTPs and USCG District Commanders the authority to impose safety zones, security zones and other restrictions to ensure the safe flow of navigation.

The COTP for the Cumberland River is the Commanding Officer of the Marine Safety Office in Paducah, KY.

#### **7.1.2 U.S. Army Corps of Engineers - Nashville District**

United States Army Corps of Engineers: Title 33, U.S. Code defines USACE roles and responsibilities regarding development of or changes to waterfront facilities, weirs, dams or dikes. Specifically, the USACE is authorized to review and approve all changes to hydrodynamic structures for the purposes of maintaining a navigable channel. In addition, the USACE is charged with conducting waterworks operations to maintain the physical nature of a navigable channel on particular waterways.

USACE jurisdiction on the Cumberland River is headquartered in Nashville, TN.

#### **7.1.3 U.S. Army Corps of Engineers - Lakes and Rivers Division - Cincinnati**

The USACE - Lakes and Rivers Division coordinates Cumberland River releases during flood events to minimize impacts.

The USACE - Lakes and Rivers Division is located in Cincinnati, OH.

## 7.2 State and Local Governments

State and County Emergency Management and public safety personnel represent local interests and can significantly impact traffic management decisions. Though it is not always practical to involve local interests in traffic management decisions, particularly when they involve federal statutory requirements, State and County Emergency Management Agencies (SCEMA) should be consulted and informed of decisions that may have an effect on local waterways and overall public safety. If necessary for successful problem resolution, an invitation may be extended to a state or local agency to participate in a particular emergency traffic event.

## 7.3 Industry Groups

As the principal river users and experts, industry groups should be called upon to provide assistance during waterway management activities. TCWC is the primary organizations available to provide these services on the Cumberland River. Designated contact members of TRVA and TCWC are listed in APPENDIX I.

# 8. COMMUNICATIONS

Efficient and effective communication can prevent or minimize damage and/or losses that can occur due to a navigation transportation emergency. With accurate up-to-date information, towboat operators can make necessary decisions to minimize their risk and potential damage to the navigation system. Communication between towboat operators, USACE, and USCG will ensure vessel locations are current and decisions are based on timely information.

Communications has three distinct phases: collection, processing and dissemination. The USACE and USCG staffs must ensure that as much information as possible has been received, verify its accuracy and then assure its proper and timely dissemination. Timely reports should be provided to the public affairs officers of USACE and USCG for dissemination to interested parties.

## COMMUNICATION METHODS

The USCG must communicate with USACE and as many users as possible, primarily by conference call, to reach timely decisions affecting the waterway. The following discusses the additional means that results of the conference calls can be disseminated.

The best method of effective and timely communication includes utilization of electronic technology such as the Internet, auto attendant phone systems, and fax on demand. USACE, USCG, and most towing companies have Internet sites. A list of these sites can be found in APPENDIX IV, and the appropriate information will be posted on these sites and updated as frequently as possible as information changes. Current Internet and mapping technology allows almost instantaneous update and retrieval by multiple users.

Other information systems such as fax on demand and auto attendant phone systems should be available for those who do not have Internet access.

There are times when person-to-person contact is the best way to communicate during a crisis. Personal attention to the concerns of key customers and local emergency operations staff can eliminate feeling of mistrust or apprehension. The use of person to person contact takes more time than other communication methods and therefore it should be used judiciously.

While the goal of this plan is to minimize reliance on telephone voice to voice contact, that option still exists. By using current technology, information can be properly detailed and frequently updated and the number of phone conversations minimized.

## **9. PUBLIC INFORMATION**

The general public has a major investment in the timely restoration of navigation and marine commerce following a river crisis or closure. Extended closures create a tremendous adverse impact on local and regional economies. Therefore, accurate emergency information should be disseminated to the public as expeditiously as possible through every available channel, including, but not limited to the Internet and automated phone services.

**SAMPLE BROADCAST NOTICE TO MARINERS**

UNCLASSIFIED

FROM: GRUP/GRUOHVCOMM  
PD 02 DE NC  
PD/002328 02/001685

18:10:36 Apr 21, 98

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UNITED STATES COAST GUARD  
GROUP OHIO VALLEY COMMUNICATIONS CENTER  
LOUISVILLE, KY

\*\*\* Action Office is responsible for all Action\*\*\*  
\*\*\*Re-addressing and Re-routing required by this\*\*\*  
\*\*\*message. (COMDTINST M2000.3, Art IO.A.4)\*\*\*

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P 211730Z APR 98 ZUI ASN-GOVIII000066  
FM COMCOGARDGRU OHIO VALLEY LOUISVILLE KY  
TO CCDGEIGHT NEW ORLEANS LA//OAN/M/CC//  
INFO COGARD DIRWESTRIVOPS ST LOUIS MO  
PD/COGARD MSO PADUCAH KY  
COGARD MSD NASHVILLE TN  
CDRUSAED NASHVILLE TN  
02/USCGC OUACHITA  
BT

UNCLAS //N16502//

SUBJ: WESTERN RIVERS BNM 0170-98 OV  
SAFETY AND ALL SCHEDULED BROADCASTS UNTIL CANCELLED.  
USCG EIGHTH DISTRICT NOTICE TO MARINERS NR 0170-98 OV  
CUMBERLAND RIVER

THE COTP PADUCAH, IN CONSULTATION WITH THE CORPS OF  
ENGINEERS AND THE TOWING INDUSTRY, HAS ESTABLISHED A SAFETY  
ZONE ON THE CUMBERLAND RIVER FROM CLARKSVILLE, TENNESSEE MI 126.0  
TO CHEATHAM DAN, MI 148.7. NO VESSEL MAY ENTER THIS SAFETY ZONE  
WITHOUT PRIOR APPROVAL OF THE COTP. EXTREMELY HIGH FLOW RATES  
FROM CHEATHAM DAM HAVE PRODUCED HAZARDOUS NAVIGATING CONDITIONS  
THROUGHOUT THIS AREA. FLOW RATES ARE EXPECTED TO DROP FROM THEIR  
CURRENT LEVELS OF \_\_\_\_\_ CFS TO \_\_\_\_\_ CFS BY \_\_\_\_ (DAY) \_\_\_\_ MORNING  
\_\_\_\_ (DATE)\_\_\_\_. AT THAT TIME, SAFETY ZONE RESTRICTIONS WILL BE RE-EVALUATED.

BT

NNNN

Posted B: DPO 13:21:46 Apr 21, 98  
Posted To: Apr-21-98  
Viewed By: CAB 13:26:00 Apr 21, 98  
SEC 15:04:51 Apr 21, 98  
CO 15:30:31 Apr 21, 98  
LTE 07:12:42 Apr 22, 98

UNCLASSIFIED

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## Appendix II

## Cumberland River Navigation Management Plan

### WATCH PHASE CRITERIA (LOW WATER)

Facility	Tailwater Gage		Comment
	Feet	Elevation (MSL)	
Barkley Lock	2	302.0	Flow Depends on Ohio River Elevation
Cheatham Lock	13	354.0	Slack Water Navigation Pool
Nashville Harbor	16.9	385.0	Minimum Desired Level for Navigation
Old Hickory Lock	13	385.0	Slack Water Navigation Pool
Cordell Hull Lock	15	444.0	Slack Water Navigation Pool

### WATCH PHASE CRITERIA (Maximum Desired Flows for Flood Control)

Facility	Tailwater Gage		Flow (CFS)	Comment
	Feet	Elevation (MSL)		
Barkley Lock				35,000 Flow Depends on Ohio River Elevation
Barkley Canal	1/2 a foot differential			
Cheatham Lock				60,000 Nearing All Spill
Nashville Harbor	25'	393.0		Minimum Gauge at Nashville *
Old Hickory Lock				60,000 Maximum Desired Release Based on Nashville's 90,000 CFS
Cordell Hull Lock				Maximum Desired Release Based on Carthage's 72,000 CFS>

## Appendix III Cumberland River Navigation Management Plan

### ACTION PHASE CRITERIA

Facility	Tailwater Gage		Comment
	Feet	Elevation (MSL)	
Barkley Lock			50,000 Determined by Ohio River Conditions
Barkley Canal	1/2 a foot with forecast of increase		
Cheatham Lock			75,000 Tow Configuration modified to maximum 70' width
Nashville Harbor	30'	398.2	and straight single lockage
Old Hickory Lock			
Cordell Hull Lock			

### EMERGENCY PHASE CRITERIA (HIGH WATER)

Facility	Tailwater Gage		Comment
	Feet	Elevation (MSL)	
Barkley Lock	51'	351.0	Lockages Discontinued (Flow Depends on Ohio River Conditions)
Barkley Canal	1 Foot differential		
Cheatham Lock			90,000 Lockages Discontinued HW Elev. 387.1 or Extreme Flow Conditions.
Nashville Harbor	35'	403.2	Flood Stage is 40' (approx. 110,000 cfs)**
Old Hickory Lock		424.0	Lockages Discontinued or when HW Elev. 448.0 ***
Cordell Hull Lock			

**Navigation Locks are subject to close as conditions warrant**

\*\*Combined flows from Old Hickory, J. P. Priest and tributaries.

\*\*\*Flows May Be Greater Than or Less Than 90,000cfs

## APPENDIX I: INTERNET SITES FOR RIVER INFORMATION

USCG

<http://www.uscg.mil/d8/uscgd8.htm>

USACE

<http://www.lrd-wc.usace.army.mil/>

RIB

<http://www.ribb.com>