TENNESSEE RIVER

Waterway Management Plan 2014

TVA

TENNESSEE RIVER

Waterway Management Plan

A JOINT PROJECT OF THE TENNESSEE RIVER VALLEY ASSOCIATION, TENNESSEE-CUMBERLAND WATERWAY COUNCIL, U.S. ARMY CORPS OF ENGINEERS, U.S. COAST GUARD AND TENNESSEE VALLEY AUTHORITY

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Forward

The Tennessee River Waterway Management Plan has been jointly prepared by the marine industry, U.S. Coast Guard (USCG), U.S. Army Corps of Engineers (USACE), and Tennessee Valley Authority (TVA). This plan is intended to facilitate the safe and orderly movement of barge traffic during high and low water navigation crises on the Tennessee 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. This document is analogous to the Mississippi River Crisis Action Plan with special focus on the unique nature of the Tennessee Valley reservoir system. Accordingly, this plan deals with potential navigation emergencies on the Tennessee River. The towing industry contribution is invaluable in preparing this document.

The document is designed to be current with up-to-date designated contacts and their telephone numbers. These contacts are shown in Appendix A.

SECTION 1.0

Introduction

The Tennessee River Waterway Management Plan provides guidance for marine operations and transportation emergencies on the Tennessee 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 USCG, TVA, USACE, local Emergency Management Agencies, and the marine industry to facilitate the safe and orderly movement of barge traffic during a navigational crisis. 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. A map of the Tennessee River is shown below.

The users of this plan must realize that each crisis has unique issues, factors, and controlling elements that require constant evaluation and adjustment. No plan can replace a clear, logical, and analytical approach to problem solving. 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 communication 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.

Tennessee River and Watershed

SECTION 2.0

Hydrology and Meteorology

2.1 Purpose

This chapter provides anyone charged with mitigating the effects on navigation of abnormal water levels on the Tennessee River with basic information on the hydrological and meteorological factors that affect the Tennessee River system and identifies how these factors affect river levels and navigation safety. This chapter also outlines the general philosophy for attending to navigation safety issues and discusses the tools available to conduct waterway management activities.

2.1.1 Hydrological and Meteorological Factors Affecting Waterway Management

TVA manages the flow of the Tennessee River for flood control, navigation, power generation, water quality, water supply, and recreation. Frequently, 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 Tennessee River system managed by TVA consists of 9 mainstream dams with navigation locks and 40 tributary dams, one having a navigation lock and one connected by a canal to a mainstream reservoir. The Tennessee River is also connected to the Cumberland River System and the Tennessee-Tombigbee Waterway by canals. The TVA Act requires TVA to provide a 9-foot navigation channel.

TVA practice is to fill all reservoirs in the spring with the lower main river system reservoirs being filled by April 15, Kentucky Reservoir by April 30, upper main river reservoirs by May 15, and the tributary reservoirs by June 1. From then until Labor Day, the water is released for minimum flows, thermal cooling, and power generation. After Labor Day, reservoirs are gradually reduced preparing the reservoirs for winter rain. Tributary storage reservoirs and local inflow

provide the water necessary to maintain navigation on the mainstream reservoirs.

Inflow to the reservoirs is dependent on many factors including water flow, soil moisture, snow cover, precipitation, temperature, and weather patterns. TVA constantly monitors these factors and forecasts river conditions to ensure adequate preparation for a river emergency. Numerous variables affect how much water is in the river system at any given time.

Key Variables TVA Must Consider

1

Base Flow

The amount of flow—measured in cubic feet per second—along a section of river, usually measured at a dam

TVA has established a historical average flow rate for each section of the river prior to impoundment of the reservoir. Flow rates now are dependent on the 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 by the soil or vegetation. 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 and state water or soil conservation agencies.

3

Precipitation

The amount of rain or sleet, etc.

Precipitation becomes runoff and impacts water levels within the river system. The amount and duration of precipitation are equally important factors. Precipitation averages and totals are obtained from the U.S. Geological Survey, the National Oceanic and Atmospheric Administration, the National Weather Service, and state agencies.

SECTION 3.0

Waterway Management

3.1 Goal

The goal of this waterway management plan is to facilitate safe navigation during a period of less than optimum conditions. Timely, well-designed interventions by TVA, USCG, and USACE will bring order to the confusion surrounding a flood, drought, or other incidents such as spills, emergency lock closures, and failure of other structures that cross a river. The plan is intended to limit adverse economic impact on local and regional economies. The management of marine traffic during emergencies requires clear goals and a focused plan of action to address associated 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, local waterway managers, industry-user groups such as the Tennessee-Cumberland Industry Committee (TCIC), and others should be continuously cultivated and all parties given a partnership in the decision-making process.

TVA, USCG, and USACE must continually monitor hydrological and meteorological reports and the frequency of vessel casualties 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 users of the Tennessee River and its tributaries have a compact group to contact when there is a need for communication. The three organizations that address the industry concerns on the Tennessee River are the USCG, TVA, and USACE, Nashville District.

With the designation of an Assigned Dedicated Contact Person(s) by the industry, a compact group can respond promptly during a navigation transportation emergency or disruption on the Tennessee River. The USCG will contact TVA and USACE and attempt to contact all towing operators. However, in addition to TVA and USACE, a minimum of three towing-industry operators – listed in Appendix A – that can be reached by the USCG, may serve as a quorum for a conference call.

3.3 System Management and Control

Waterway Management intervention actions 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 control should be exercised only to the extent necessary to mitigate these risks. In all cases, the control imposed should be the least restrictive necessary. The degree of control can always be escalated as conditions worsen.

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 Tennessee River system. When an intervention must be conducted on one part of the Tennessee River, other areas of the river must be considered. Care must be taken to recognize any restriction implemented to address local safety issues that may create 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 TVA and USACE. They can be originated by the USCG or self imposed by industry, and disseminated as Broadcast Notice to Mariners, USACE bulletin board, River Industry Bulletin Board, over the industry facsimile system, or any combination of these methods. The purpose is to advise the marine industry of hazardous conditions and provide recommendations for navigating safely. Advisories can also be used to notify the marine industry of the intention to take action in respect to developing navigation conditions. Advisories are important tools that provide time to adjust for marine operations and to avoid future problems.

3.3.2 Safety Zone

Due to the degree of control of Tennessee River flows by TVA, the most probable used intervention activity will be the establishment of a safety zone by the Captain of the Port that imposes vessel-operating restrictions. Consultation and deliberation with TVA, USACE, 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, tributary, or harbor. This enables the USCG to control access and/or prescribe operating restrictions on vessel operators 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 the following:

- 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; and
- 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 are 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 traffic control system. These are joint government/industry organizations established temporarily to actively facilitate the safe movement of river 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 are manned by a combination of government and industry personnel under the control of the Captain of the Port or Coast Guard District Commander depending on the scope, nature, and duration of the incident.

3.4 Communication

A special communication 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 exists;
- An environmental emergency has developed (chemical or petroleum spill);
- Emergency closure of a lock; or
- River crossing structure failure (downed bridge or power line, ruptured pipeline).

The 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 the following 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 in Appendix B. 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 TVA water-control actions or have markedly deteriorated and weather forecasters predict continued abnormal rain and streamflow conditions. The Captain of the Port, TVA, local USACE personnel and local river-user groups will be the first to predict or become aware of difficulties being experienced by operators of commercial navigation. These groups 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 advance 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. Some marine pilots are navigating with difficulty and local navigation advisories and safety zones are defined to address hazardous areas. A high probability exists that weather forecasts and hydrological projections indicate conditions will continue to worsen. The Incident Action Plan is developed for the subject section of the waterway. The plan is prepared by the USCG in conjunction with TVA, USACE, and the Tennessee-Cumberland Industry Committee.

Incident Action Plan: The plan 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 Incident Action Plan, appropriate Operations Orders will be issued. This will insure 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. During the Emergency Phase, river conditions and Aids to Navigation 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 are high and maximum caution should be observed. The USGS Aids to Navigation system is deteriorating and USCG river tenders cannot meet the demands for marking the river. The USCG will activate the Traffic Control Center to coordinate the implementation of the Incident Action Plan.

Recovery Phase

Situation: The Recovery Phase starts once limited navigation can be resumed on the affected section of the river system. It is characterized by improving navigation and weather conditions, rivers returning to normal stages and reestablishment of the Aid to Navigation 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 lifted and navigation is conducted 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 Traffic Control Center and will complete documentation of the event.

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 efficiently, it is essential that river users and managers participate in decisions. These users should meet regularly (such as the semiannual USACE, Nashville District navigation meetings) to review existing conditions, assess the possibility of future emergencies, and review contingency planning.

SECTION 4.0

Waterway Management Issues Associated with High Water

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

Impacts on Navigating Tows

- Marine pilots navigating against the current face the potential for stall outs and loss of control.
- Pilots have difficulty making meeting and passing agreements due to effects of the current.
- Heavy debris flow causes vessel damage to rudders and propellers, as well as side-shell damage to barges.
- Pilots have difficulty approaching lock walls.
- Landings and passages through bridges become more difficult to navigate due to abnormal out drafts and currents, increasing allision incidents to bridge fendering systems.
- Close maneuvering 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 drafts that lead to potential increase in allisions with lock structures and gates.
- High currents and subsequent full-power maneuvering stresses tow rigging, increasing tow breakups.

Impacts on Moored, Fleeted Vessel, and Facilities

- Fleet anchors and dead men are strained by high flow and current, increasing the potential for breakaways.
- Tow building and midstream operations become difficult. Fleeting operations require monitoring to prevent breakaways.
- Harbor activity decreases and a fewer vessel operators are available to respond to harbor emergencies.
- Loading and unloading docks become inactive due to crane limitations, causing fleet congestion.
- Facilities, particularly power plants, run short of coal and feed stocks, leading to later requests for passage of critical cargoes.
- Pilots of large passenger vessels experience difficulty in maneuvering.

Impacts When Navigation is Halted

- Crews and vessels trapped in the closure area require replenishment of potable water, groceries, and fuel.
- Local law enforcement and relief agencies request small boat transportation to deliver aid.
- Fleets require line boats to assist in maintaining security.
- Tied-off tows and passing vessels near property may create tension with landowners.
- Recreational boaters and marinas operate despite river closure.

4.1 Marine Transportation Emergency Response Cycle

This section provides 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 the following 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, TVA, USCG, USACE, and transportation officials should complete the following tasks:

1. USCG will arrange the initial conference call when it is anticipated that navigation conditions will worsen.

2. Activate previously assigned dedicated contacts and support staff.

3. Notify affected parties that 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 (www.ribb.com) of potentially deteriorating navigation conditions on the Tennessee River (after the USCG has issued a Broadcast Notice to Mariners).

Action Phase

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

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

2. Conduct 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 issues a navigational advisory to the media announcing the implementation of the safety zone.

5. Augment staffs (if necessary) for previously assigned dedicated contacts.

6. Establish an information system for gathering marine pilot input on navigating conditions via industry.

7. Increase surveillance to capture real-time pictures of river conditions.

8. The USCG issues news releases outlining the crisis, the establishment of the Traffic Information Center, and planned intervention activities.

9. Issue a Broadcast Notice to Mariners and revise notice on the online River Industry Bulletin Board of potential actions by the Captain of the Port for the Tennessee River.

10. Initiate development of policies for vessel queuing, test-tow procedures, special movements, vessel replenishment, and reduced crewing.

11. The Captain of the Port will establish a safety zone in preparation for the cessation of navigation within the affected area.

12. The USCG issues releases to the media, navigation advisories (Broadcast Notice to Mariners), and briefings to ensure a continuous flow of information to all interested parties. The River Industry Bulletin Board is also updated.

Emergency Phase

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

1. Examine the crisis and update information from the Action Phase.

2. Issue notices implementing safety zones.

3. Issue waivers to vessels operators needed to maintain safe harbor operations.

4. Discuss imminent operations and revise the Operations Order as necessary.

5. Post a notice on the River Industry Bulletin Board of the situation and the actions taken. The USCG issues Broadcast Notice to Mariners.

6. The USCG issues a release to the media 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 TVA, USCG, USACE, and transportation officials briefing them of 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 Tennessee River Valley Association and Tennessee-Cumberland Industry Committee 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 if 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, TVA, USACE, and transportation officials have determined that a large-scale transportation emergency no longer exists. They should complete the following tasks:

1. Continue telephone conferences, if warranted, to examine the crisis and update information in the Emergency Phase.

2. Unless otherwise indicated, provide updates through media releases, Broadcast Notice to Mariners, 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 Traffic Information Centers through news releases, Broadcast Notice to Mariners and other means possible (River Industry Bulletin Board).

6. Conduct a debriefing of the operation to capture lessons learned.

7. Draft an after-action report and incident history to be used in refining the Tennessee River Waterway Management Plan.

8. Collect and archive pertinent records of the response.

9. Return the assigned dedicated contact persons to their normal functions.

SECTION 5.0

Low Water

During periods of low water, navigation may be constrained by the amount of water that TVA can make available. Marine pilots may encounter reduced channel widths and draft limitations. During winter drawdowns for flood control, TVA augments flows to facilitate commercial traffic downstream of Pickwick and Wilson Locks and in the channel above Knoxville.

SECTION 6.0

Environmental or Other Emergencies

At times, waterway situations or conditions develop that are not related to weather. For instance, 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 controls the situation and makes the necessary decisions. Pertinent information about these events is distributed using the communication guidelines of the Tennessee River Waterway Management Plan.

SECTION 7.0

Authorities and Responsibilities

The successful management of any traffic crisis is dependent on the cooperation of the waterway system participants. This includes 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 three federal agencies primarily responsible for actions relating to navigation on the Tennessee River – TVA, USCG, and USACE. Federal law provides the requisite authority for establishing and maintaining a clear navigational path throughout territorial waterways of the United States. Included as part of a national waterway system is the Tennessee 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. TVA is responsible for authorizing waterway projects on the Tennessee River, and with the USACE, evaluating and maintaining navigation facilities and channels, and directing emergency flood-control operations.

7.1.1 Tennessee Valley Authority

TVA: Under the TVA Act of 1933, as amended, 6 U.S.C. §§ 831-831dd (1994), TVA is authorized to construct and operate dams and reservoirs in the Tennessee River and its tributaries to promote navigation and to control destructive floods.

Also under the TVA Act, TVA has broad responsibilities for:

"...the development of the natural resources of the Tennessee River drainage basin and of such adjoining territory as may be related to or materially affected by the development for the general purpose of fostering an orderly and proper physical, economic, and social development of said areas. The broad responsibilities placed on the Authority relate to navigability, flood control, reforestation, marginal lands, and agricultural and industrial development of the whole Tennessee Valley."

Those responsibilities specifically include the construction and maintenance of the dams and reservoirs in the Tennessee River and its tributaries and providing a nine-foot channel in the river. See 16 U.S.C. 831C(l). TVA is headquartered in Knoxville, Tennessee.

7.1.2 U.S. Coast Guard

USCG: Title 14, U.S.C., defines USCG roles and responsibilities in establishing and maintaining the safety of ports and waterways. 33 CFR 165.20 gives Captain of the Port and USCG District Commanders the authority to impose safety zones, security zones, and other restrictions to ensure the safe flow of navigation.

The Captain of the Port for the Tennessee River is the Commanding Officer of the Marine Safety Office in Paducah, Kentucky.

7.1.3 U.S. Army Corps of Engineers, Nashville District

USACE: 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. By Memorandum of Agreement with TVA, USACE is responsible for operation and maintenance of the locks on the Tennessee River. The USACE also maintains the Tennessee River commercial channel and federal mooring facilities. USACE jurisdiction on the Tennessee River is headquartered in Nashville, Tennessee.

7.1.4 U.S. Army Corps of Engineers Great Lakes and Ohio River Division, Cincinnati

The USACE Great Lakes and Ohio River Division coordinates Tennessee River releases during flooding to minimize impacts on the lower Ohio and Mississippi Rivers and is headquartered in Cincinnati, Ohio.

7.2 State and Local Governments

State and county emergency management agencies and local 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 and local public safety personnel should be consulted and informed of decisions that may have an impact on local waterways and overall public safety. If necessary for successful problem resolution, an invitation may be extended to state or local agencies to participate in emergency traffic control. Currently, TVA has agreements with the Hamilton and Loudon County for notifying barge terminal operators when specific trigger flows are anticipated in their respective areas.

7.3 Industry Groups

As the principal river users and experts, industry groups should be called upon to provide assistance during waterway management activities. The Tennessee-Cumberland Industry Committee is the primary organization available to provide these services on the Tennessee River. The designated contacts are listed in Appendix A.

SECTION 8.0

Communication

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

Communications has the following three distinct phases:

Collection, Processing, and Dissemination

TVA, USACE, and USCG staffs must ensure that as much information as possible has been received, is accurate, and is properly disseminated. Timely reports should be provided to the public affairs officers of TVA, USACE, and USCG for circulation to interested parties.

Communication Methods

The USCG must communicate with TVA, USACE, and as many users as possible, primarily by conference call, to reach timely decisions affecting the waterway.

The best method of communication is by using technology such as the Internet, auto-attendant phone systems, and fax on demand. TVA, USACE, USCG, and the towing industry all have Internet sites. The appropriate information will be posted on these sites and updated as frequently as possible as the information changes. Current Internet and mapping technology allow an 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 is a time 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 feelings of mistrust or apprehension. The use of person-to-person contact takes more time than other communication methods and should be used judiciously.

While the goal of this plan is to minimize relying on telephone and 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.

SECTION 9.0

Public Information

The general public has a major stake in the timely restoration of marine commerce following a river crisis. Extended river closures have a tremendous impact on local and regional economies. For general and recreational safety, navigational emergency information needs to be passed to the public in a timely fashion. With the Internet sites publicized, many individuals can access the information of value to them. In addition to the Internet, announcements on radio and television serve a function. Again, those without Internet access may call an automated phone attendant.

APPENDIX A

Agency Designated Emergency Contacts

Agency	Designated Contact	Telephone Number
Towing Industry—primary contact	Billy Poindexter Jr.	270-441-1638
Towing Industry—secondary contact	Steve Southern	270-441-1634
U.S. Army Corps of Engineers, Navigation Branch	Wayne Ligon	615-736-7802
U.S. Army Corps of Engineers, Navigation Branch	Owen Traughber	615-736-5608
U.S. Army Corps of Engineers, Hydraulics Branch	Randy Kerr	615-736-5633
U.S. Army Corps of Engineers, Hydraulics Branch	Robert Dillingham	615-736-7936
National Weather Service, Nashville	24-Hour Desk	615-754-8502
National Weather Service, Nashville	James LaRosa	615-754-8500, Extenstion 228
U.S. Coast Guard, Marine Safety Detachment, Nashville	Supervisor	615-736-5421
U.S. Coast Guard, Ohio Valley Command Center	24-Hour Desk	1-800-253-7465 or 502-779-5300
Tennessee Valley Authority	Nikki Berger	865-632-8980

APPENDIX B

Watch, Action and Emergency Phase Criteria

Watch Phase

Project/Location	Tailwater Reading Feet	Tailwater Reading Elevation (msl)		Dam Release Flow (1000 cfs)	Comment
River Mile 21.1 to 22.4				160	ICE and TCIC notified
Kentucky Lock	47.0	336.0		Varies	Tailwater readings are influenced by Ohio River level
Kentucky-Barkley Canal					Difference of .5 feet between Kentucky and Barkely pool elevations
Pickwick Main Lock	44.0	386.0	or	100	"Fast Double" lockages discontinued
Pickwick Auxiliary Lock	43.8	386.0	or	100	Strong currents begin to develop in lower approach
River Mile 256.5				200	High Flows begin to make entrance to Florence Canal difficult
Wilson Locks	30.0	425.0	or	200	
Wheeler Locks	17.5	507.5	or	200	
Guntersville Locks	29.7	567.0	or	130	Currents in lower approach become hazardous
Nickajack Lock	26.0	606.0	or	100	
The Gorge (River Mile 443–454)				46	
Chickamauga Lock	20.8	639.0	or	46	Hamilton County Emergency Services notified, alerts terminal operators
Watts Bar Lock	22.8	686.0	or	45	Full turbine capacity
Fort Loudoun Lock	23.8	747.0	or	30	Full turbine capacity

ICE—Industry Council for the Ohio River
TCIC—Tennessee-Cumberland Rivers Industry Committee

Action Phase

Project/Location	Tailwater Reading Feet	Tailwater Reading Elevation (msl)		Dam Release Flow (1000 cfs)	Comment
Mile 21.1 to 22.4				180	USCG initiates Safety Advisory
Kentucky Lock	51.0	340.0		Varies	Only two feet of freeboard on lower guide wall
Kentucky-Barkley Canal					Difference of .5 feet between reservoir pools with forecast of increase
Pickwick Main Lock	52.0	394.0	or	120	Strong cross currents in lower approach
Pickwick Auxiliary Lock	52.0	394.0	or	120	Auxiliary lock closes
Mile 256.5				275	Pilots must use extreme caution when entering Florence Canal
Wilson Locks	32.5	427.5	or	275	Auxiliary lock closes due to insufficient freeboard on lower guide wall
Wheeler Locks	16.4	507.9	or	275	
Guntersville Locks	31.7	569.0	or	160	Strong currents make entering/leaving lower approach hazardous
Nickajack Lock	28.5	608.5	or	125	
The Gorge (River Mile 443–454)				85	USCG initiates Safety Zone—Gorge open only in daylight
Chickamauga Lock	24.3	642.5	or	Varies	
Watts Bar Lock	22.3	685.5	or	50	
Mile 592-601				50	Loudon County Emergency Management Agency notified, alerts terminal operators
Fort Loudoun Lock				60	Restriction of only 700 feet for length of tow (excluding towboat)

Emergency Phase

Project/Location	Tailwater Reading Feet	Tailwater Reading Elevation (msl)		Dam Release Flow (1000 cfs)	Comment
Mile 21.1 to 22.4				200	USCG initiates Safety Advisory. Possible tow-size restrictions
Kentucky Lock	52.0	341.0		Varies	Lock closes due to insufficient freeboard on lower guide wall
Kentucky-Barkley Canal					One foot difference between pools; USGS safety zone established
Pickwick Main Lock	58.0	400.0	or	400	Lock closes due to insufficient freeboard on lower guide wall
Pickwick Auxiliary Lock	57.8	400.0	or	400	Lower approach wall submerged, auxiliary lock closed
Mile 256.5					
Wilson Locks	35.0	430.0	or	350	
Wheeler Locks	17.5	509.0	or	350	
Guntersville Locks	35.7	573.0	or	200	Lock closed due to cross-currents in lower approach
Nickajack Lock	32.5	612.5	or	175	
The Gorge (River Mile 443–454)				100	USCG initiates Safety Zone—CLOSURE to all traffic
Chickamauga Lock	26.3	644.5	or	Varies	Closed to navigation due to insufficient freeboard on the coffer dam
Watts Bar Lock				100	Closed to all traffic due to cross currents in lower approach
Mile 592-601					
Fort Loudoun Lock				80	Closed to commercial traffic due to cross currents in upper approach

APPENDIX C

Sample Broadcast Notice to Mariners

UNCLASSIFIED

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R 101540Z SEP 14
FM COGARD MSD NASHVILLE TN
TO COMCOGARD SECTOR OHIO VALLEY LOUISVILLE KY
INFO USCGC CHIPPEWA
USCGC CIMARRON
USCGC OUACHITA
BT
UNCLAS //N16125//
SUBJ: REQUEST BROADCAST NOTICE TO MARINERS
1. ALL SAFETY AND SCHEDULED BROADCASTS.
2. QUOTE: THE U.S. COAST GUARD CAPTAIN OF THE PORT HAS ISSUED THIS
SAFETY ADVISORY DUE TO HIGH WATER THAT EXISTS IN THE VICINITY OF THE
TENNESSEE RIVER GORGE, MILE MARKER 446 TO MILE MARKER 454.5.  HEAVY
RAINFALL HAS CAUSED RELEASES FROM CHICKAMAUGA DAM, TNR MM 471, TO GO
ABOVE 90,000 CFS. IAW THE WATERWAY MANAGEMENT PLAN, THE USCG COPT
OHIO VALLEY HAS ESTABLISH A SAFETY ZONE ON THE TNR FORM MM 446 TO MM
454.5, EXTENDING THE ENTIRE WIDTH OF THE RIVER. NAVIGATION OF THE
GORGE HAS CEASED BETWEEN THESE MILE MARKERS. FLEET OPERATORS SHOULD
REGULARLY CHECK THEIR FLEETS AND IMMEDIATELY REPORT BARGE BREAK-AWAYS
TO THE USCG. THIS SAFETY ZONE WILL REMAIN IN EFFECT UNTIL CHICKAMAUGA
DAM REDUCES FLOW BELOW 90,000 CFS.
UNQUOTE.
BT
NNNN
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UNCLASSIFIED

UNCLASSIFIED

R 101540Z SEP 14
FM COGARD MSD NASHVILLE TN
TO COMCOGARD SECTOR OHIO VALLEY LOUISVILLE KY
INFO USCGC CHIPPEWA
USCGC CIMARRON
USCGC OUACHITA
BT
UNCLAS //N16125//
SUBJ: REQUEST BROADCAST NOTICE TO MARINERS
1. ALL SAFETY AND SCHEDULED BROADCASTS.
2. QUOTE: THE U.S. COAST GUARD CAPTAIN OF THE PORT HAS ISSUED THIS SAFETY ADVISORY DUE TO HIGH WATER THAT EXISTS IN THE VICINITY OF THE TENNESSEE RIVER GORGE, MILE MARKER 446 TO MILE MARKER 454.5. HEAVY RAINFALL HAS CAUSED RELEASES FROM CHICKAMAUGA DAM, TNR MM 471, TO GO ABOVE 75,000CFS. IAW THE WATERWAY MANAGEMENT PLAN, IT IS RECOMMENDED THAT COMMERCIAL TRAFFIC TRANSIT THROUGH THE GORGE AREA DURING DAYLIGHT HOURS ONLY. MARINERS ARE ADVISED TO EXERCISE CAUTION DUE TO THE HAZARDOUS CONDITIONS ASSOCIATED WITH STRONG CURRENTS, INCREASED DRIFT, AND SEVERE OUTDRAFTS. MARINERS ARE ADVISED TO CONSIDER HORSEPOWER CAPABILITY AND TOW SIZE WHEN NAVIGATING THIS AREA. FLEET OPERATORS SHOULD REGULARLY CHECK THEIR FLEETS AND IMMEDIATELY REPORT BARGE BREAK-AWAYS TO THE U.S. COAST GUARD. THIS ADVISORY WILL REMAIN IN EFFECT UNTIL CHICKAMAUGA DAM REDUCES FLOWS BELOW 75,000 CFS.
UNQUOTE.
BT
NNNN

UNCLASSIFIED

400 West Summit Hill Drive
Knoxville, Tennessee 37902

www.tva.com

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