



U. S. Coast Guard Sector Ohio Valley

Waterways Action Plan



Executive Summary

The Sector Ohio Valley (SOHV) Waterways Action Plan (WAP) provides the marine industry, U.S. Coast Guard (USCG), U.S. Army Corps of Engineers (USACE), States and local governments with a plan for facilitating the safe and orderly movement of traffic during extreme conditions on the inland rivers within SOHV's area of responsibility. This SOHV plan supports the [D8 WAP](#) promulgated in 2007, which gives overall context, history and intent for regional WAPs throughout the district.

The WAP is a living document that should be frequently updated. The USCG will conduct an annual review of the WAP in conjunction with industry partners and USACE to verify the accuracy of the plan and communications information. I encourage all stakeholders to document the lessons of experience and history by continually refining the plan with prudent conditions and restrictions. This plan establishes one common framework for all parties to use when taking proactive or reactive steps to deal with high water, high velocity, low water and ice conditions. The overall goal of this plan is to ensure safety of life and navigation, protection of infrastructure and property, and to prevent marine casualties.

Conference calls between USCG, USACE and industry stakeholders have proven their value throughout years of response to river emergencies, and they remain useful tools to successfully manage river emergencies.

Industry leaders, USACE and USCG from Pittsburgh, PA, Huntington, WV, Louisville, KY, Paducah, KY, Cincinnati, OH and Nashville, TN worked jointly to update the 2017 SOHV WAP. The diligent efforts and coordination of all parties working close together to manage the waterways allowed for successful publication of the WAP.



Michael B. Zamperini
Captain, United States Coast Guard
Captain of the Port
Sector Ohio Valley

Record of Changes from 2015 revision

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Signature Pages

Updated TCIC Chairman name

Updated MSD Nashville Supervisor name

Updated name for Chairman, Lower Mississippi River Committee

Added USACE St Louis District signature block

Section 2

2.A.2 Updated committee/industry point of contact information

Section 3

3.A.1 Updated phone numbers

3.A.2 Updated contacts and contact information

3.A.4 Updated contact information

3.A.5 Removed Sector Upper Miss. River- St. Louis, MO

Added U.S. Coast Guard- Marine Safety Unit- Paducah, KY

Removed U.S. Coast Guard- Marine Safety Unit Huntington, WV

Removed U.S. Coast Guard- Sector Lower Mississippi River Memphis, TN

3.B.1.a Updated contact information

3.B.1.b Updated contact information

3.B.2.a Updated contact information

3.B.2.b Updated contact information

3.C.1 Updated contact information

3.C.2 Updated contact information

3.D.1 Updated contact information

3.D.2 Updated contact information

Section 4

4.A.18 Updated verbiage in ACTIONS column for different river phases

4.A.19 Added Reference Gauge

Updated verbiage in ACTIONS column for different river phases

4.A.20 Added Reference Gauge

Updated Other Useful Data

Updated verbiage in ACTIONS column for different river phases

4.A.21 Inserted chart name for OLMSTED High Water Operations

Added Flood Stage Reading

Added Reference Gauge

Updated verbiage in ACTIONS column for different river phases

4.A.22 Added Reference Gauge & River MM reference

Updated Other Useful Data

Updated verbiage in ACTIONS column for different river phases

4.A.23 Added bridge data for Irvin Cobb bridge

4.A.24 Added bridge data for I-24 bridge

4.A.25 Added bridge data for I.C. Railroad bridge and Cairo bridge

Added Reference Gauge

Updated Other Useful Data

Updated verbiage in ACTIONS column for different river phases

4.A.26 Added Reference Gauge

- Updated verbiage in ACTIONS column for different river phases
- 4.A.27 Added Reference Gauge
 - Updated Other Useful Data
 - Updated verbiage in ACTIONS column for different river phases
- 4.B.1 Updated Reference Gauge
 - Added bridge data for Chester Highway bridge
 - Adjusted TRIGGER READING, Trend, and Description
 - Updated verbiage in ACTIONS column for different river phases
- 4.B.2 Added bridge data for Thebes Railroad bridge
 - Updated Other Useful Data
 - Adjusted TRIGGER READING, Trend, and Description
 - Updated verbiage in ACTIONS column for different river phases
- 4.B.3 Added bridge data for Route 60/62 bridge
 - Added Reference Gauge
 - Updated verbiage in ACTIONS column for different river phases
- 4.B.4 Updated verbiage in ACTIONS column for different river phases
- 4.C.2 Updated verbiage in ACTIONS column for different river phases
- 4.C.3 Updated verbiage in ACTIONS column for different river phases
- 4.D.1 Added Reference Gauge
 - Updated verbiage in ACTIONS column for different river phases
- 4.D.2 Added Reference Gauge
 - Adjusted Trends
 - Updated verbiage in ACTIONS column for different river phases

Section 6

- 6.A. Updated casualty history by location
- 6.B.2 Updated Risk Factors
 - 6.B.2.g Added Kanawha River Waterway Analysis Risk Factor Chart

Sector Ohio Valley Waterways Action Plan

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1. Geographic Description

1.A. USCG Sector Ohio Valley – Area of Responsibility

Sector Ohio Valley is comprised of all of Kentucky and West Virginia; in Missouri: Perry, Cape Girardeau, Scott, Mississippi and New Madrid Counties; in Tennessee: that portion of Lake County north and west of a line drawn from the Mississippi River at latitude 36° 20' N and longitude 89° 32' 30" W due east to Highway 78, thence northeast along Highway 78 to the Kentucky/Tennessee state line, and all other counties except Shelby, Tipton, Lauderdale, Dyer and Obion Counties; in Alabama: Colbert, Lawrence, Morgan, Marshall, Lauderdale, Limestone, Madison, and Jackson Counties; that portion of Pennsylvania south of latitude 41° 00' N and west of longitude 79° 00' W; those parts of Indiana and Ohio south of latitude 41° 00' N; in Illinois: Jackson, Williamson, Saline, Gallatin, Union, Johnson, Pope, Hardin, Alexander, Pulaski and Massac Counties, and in Randolph County, that part of the Upper Mississippi River below mile 109.9, including both banks; that part of the Lower Mississippi River above mile 869.0.

CG Marine Safety Unit Pittsburgh – Area of Responsibility	
Ohio River	MM 00.0 - MM 127.2
Monongahela River	MM 00.0 – MM 128.7
Allegheny River	MM 00.0 – MM 72.0
CG Marine Safety Unit Huntington – Area of Responsibility	
Ohio River	MM 127.2 – MM 401.3
Kanawha River	MM 00.0 – MM 97.0
Big Sandy River	MM 00.0 – MM 26.8
Elk River	MM 00.0 – MM 190.0
Muskingum River	MM 00.0 – MM 112.5
Little Kanawha River	MM 00.0 – MM 122.0
Sector Ohio Valley (Louisville) – Area of Responsibility	
Ohio River	MM 531.5 – MM 867.4
Green River	MM 00.0 – MM 199
Kentucky River	MM 00.0 – 258.6
Wabash River	MM 00.0 – MM 585.0
White River	MM 00.0 – MM 51.6
Rough River	MM 00.0 – MM 29.0
Cumberland River	MM 385.6 – MM 694.2
CG Marine Safety Detachment Cincinnati – Area of Responsibility	
Ohio River	MM 401.3 – MM 531.5
Licking River	MM 00.0 – MM 3.0
Miami River	MM 00.0 – MM 117.6
CG Marine Safety Unit Paducah – Area of Responsibility	
Ohio River	MM 867.4 – MM 981.0
Upper Mississippi River	MM 000.0 – MM 109.9
Lower Mississippi River	MM 869.0 – MM 953.8
Tennessee River	MM 000.0 – MM 080.0
Cumberland River	MM 000.0 – MM 080.0
CG Marine Safety Detachment Nashville – Area of Responsibility	
Tennessee River	MM 080.0 – MM 652.2
Cumberland River	MM 080.0 – MM 385.6
Tennessee – Tombigbee Waterway	MM 412.0 – MM 450.5

1.A.1. MTSR and Salvage Plan

In the event of river closures, salvage of vessels, or other events that negatively impact the marine transportation system, please reference the Sector Ohio Valley MTSR and Salvage Plans.

1.A.2. Hydrologic and Meteorological Factors Affecting Waterways Management

General: The Ohio River and its tributaries form a complex system spread out over millions of square miles. In order to predict changes in conditions in this system, waterway managers must constantly monitor a number of hydrologic and meteorological factors. These include water flow, soil moisture, snow cover, precipitation, temperature, weather patterns and most importantly geography. Effective waterways managers must constantly monitor these factors and forecast river conditions in order to ensure they are adequately prepared to deal with a regional transportation emergency.

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

Base Flow The amount of water flow (measured in cubic feet per second (CFS)) along a section of river (usually measured at a dam). The USACE has established an average flow rate for each section of river. Average rates are based on flows consistent with normal weather patterns. A comparison of actual flow against the base flow is an indicator of increased or decreased water levels. The flow rate does not provide an indication of the duration of increased/decreased flows. Base flows and flow rate information are available from the USACE.

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.

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 Association (NOAA), the National Weather Service (NWS) and State agencies.

Snow Cover Snow cover is the buildup of snow that will melt and enter the water table and/or turn into runoff. Increase in snow cover will result in a corresponding increase in runoff and spring water levels. Information on snow cover can be obtained via NOAA, NWS and State weather services.

Temperatures Average fall and winter temperatures determine the depth of frost, the amount of water entering the soil and the amount and duration of river ice. Below normal temperatures in the fall and winter increase the depth of frost, allowing less water to enter the soil during periods of precipitation, increasing the amount of runoff. This situation may also cause an increase in ice and subsequent problems due to ice dams or gorges, and difficulties with the lock and dam system. Above normal temperatures in the spring increases the amount of runoff from snow melt. Temperature information is available from USGS, NOAA, NWS and State agencies.

Geography Terrain The physical characteristics of the river bend and shoreline. These characteristics impact river currents and the rate of change in water levels. Steep banks, levees, revetments, narrow channels, rock bottoms, adjacent flood plains and wetlands are just a few of the factors that determine how the river will rise or fall. In addition, geography has an effect on ice buildup, the effect of flooding, the time and complexity of maintenance and dredging and the effectiveness of traffic control measures.

River Slope

Rivers slope downstream toward their mouths. Slope is the change in elevation of the river, expressed as a ratio of the change in elevation between reference points and the number of miles between reference points. A working knowledge of slope is one of the best tools to quickly determine river conditions and the duration of low/high water events. As flow rates from the upper dams increase, the slope will increase as the upper end of the river in the vicinity of the upper dam increases in depth. If the increased flow rates remain constant, water levels downstream will rise and be sustained. As upper river water flow decreases, the river slope will decrease and water levels will crest sequentially down the river. The term for this decrease in flow and subsequent decrease in slope is called “leveling.” Once the crest has passed through the system, and flow rates become more consistent, water levels and slope will return to normal.

“Leveling” also occurs when low water conditions prevail in the system. As the dams reduce flow in order to maintain their pools, less water becomes available downstream. As each successive dam reduces flow to maintain the nine foot channel, short term low water is caused in the next pool downstream until that dam holds enough water to maintain its required level. When dams are only able to maintain minimum pool or unable to maintain a minimum channel depth due to lack of sufficient water or loss of pool, traffic management may have to be initiated.

Weather Pattern Changes

Changes in weather patterns impact the river system by themselves and in conjunction with the factors listed above. One of the best known examples of this is the abnormal pattern that contributed significantly to the Great Flood of 1993. In this case, a wet-weather pattern persisted over the upper mid-west for over six months. This was caused by a weather front convergence zone which generated frequent and prolonged thunderstorms. In addition to the excessive rain, the area experienced an early snow melt, increasing spring runoff.

2. Parties and Roles

2.A. General

USACE POSITION	DUTIES AND RESPONSIBILITIES	EQUALS	USCG POSITION	DUTIES AND RESPONSIBILITIES
Head Lock operator	Coordinate Traffic, L&D Operations, Maintains Pool		MSU Prevention/ Response Department Heads	Manages daily waterways management and casualty operations
Lock Masters	Oversees supervision and maintenance of project L&D		Prevention Department Heads per AOR	Manages and supervises daily prevention, casualty and incident response operations
District Assistant Operations Manager	Maintenance and oversight of District L&D projects		Prevention Department Heads per AOR	Manages and supervises daily prevention, casualty and incident response operations
District Operations Manager	Planning and Control of District L&D Projects		Prevention Department Heads per AOR	Manages and supervises daily prevention, casualty and incident response operations
Commander/ District Engineer	Oversees each District		MSU CO/XO or Sector Commander	Senior Officer in Charge of CG Unit and Area of Responsibility(AOR)

The successful management of any river crisis is dependent on the cooperation of the waterway system participants. This includes agencies of the federal, state and local governments, industry groups, and the general public (See 2.A.1. below for listing of industry groups by AOR), this chapter identifies the key organizations in these areas, outlines their authority and responsibilities, and explains their roles during a river crisis. They groups serve a vital role in serving as a liaison between industry and federal agencies. These groups address waterways conditions for the Allegheny, Monongahela, Ohio, Upper Mississippi, Lower Mississippi, Tennessee and Cumberland Rivers.

This plan should be used in conjunction with existing plans. Its purpose is to pull together information from existing plans and identify critical problem areas based on federal agency experience, industry experience, and statistical analysis.

2.A.1. Industry Groups & Representatives

2.A.1.a. MSU Pittsburgh AOR

2.A.1.a. 1. Waterways Association of Pittsburgh (WAP) is an industry based association which represents the maritime industry in navigation safety, waterway infrastructure, commercial vessel regulation and maritime labor issues in the Pittsburgh AOR. Various committees of the association review matters relating to vessel safety, navigation safety, maritime industry regulatory issues and waterway infrastructure.

2.A.1.a.2. Three Rivers Pollution Response Council Inc., (TRPRC) is a mutual aid organization representing a partnership between industry, U.S. Coast Guard and EPA Region III, dedicated to the prevention of oil and hazardous substances entering the inland waterways. The Council assists members with the over all aspects of response planning, drilling, and training.

2.A.1.b. MSU Huntington AOR

2.A.1.b.1. Huntington District Waterway Association (HDWA) is a regional association of commercial river users whose boundaries coincide with the Army Corps of Engineers Huntington District boundaries. The boundary extends on the Ohio River from Hannibal L/D to Meldahl L/D and includes the Kanawha and Big Sandy Rivers. Five different associations come together to form the HDWA : 1) the Huntington District Waterways Advisory Committee; 2) the Navigational Subcommittee; 3) the Big Sandy Improvement Committee; 4) the Tri-State Fleeting Association; and 5) the Kanawha River Improvement Committee. The group acts as a representative for industries operating on the Ohio River in

the Army Corps of Engineers Huntington District. The HDWA is coordinated by a volunteer chairman from industry.

2.A.1.b.2. Tri-State Spill Response Workgroup is an organization representing partnerships among U. S. Coast Guard; West Virginia, Ohio, and Kentucky state departments of environmental protection; and U. S. Environmental Protection Agency Regions III, IV, and V. The workshop's purpose is to enhance contingency planning and to assure preplanning of joint response efforts, including appropriate procedures for mechanical recovery, dispersal, shoreline cleanup, protection of sensitive environmental areas, and protection, rescue, and rehabilitation of fisheries and wildlife.

2.A.1.c. SOHV Louisville AOR

2.A.1.c.1. Central Ohio River Marine Industry Group (CORMIG) is a committee of the central Ohio River Towing companies, Coast Guard and Army Corps Representatives formed to address navigation problems during significant changes in river conditions such as extreme low water and high water events. The committee has evolved to address all issues concerning Central Ohio River navigation and is the major liaison between the towing industry, the Coast Guard, and Army Corps of Engineers for river conditions stretching from Huntington, WV to near Smithland, KY. CORMIG's AOR stretches from the Meldahl L&D at OHR MM436.2 to the JT Myers L&D at OHR MM846.0. CORMIG is coordinated by a volunteer chairman from industry.

2.A.1.d. MSU Paducah AOR

2.A.1.d.1. The Ohio River Ice Committee (ICE) is an ad hoc committee of the Ohio River towing companies formed to address navigation problems during the major ice event of 1977 – 1978 on the Ohio River. Subsequent to this crisis, the committee has evolved to address all issues concerning Ohio River navigation, especially issues related to river conditions in the Lower Ohio River Valley area, and is the major liaison between the towing industry, the Coast Guard, and the Army Corps of Engineers stretching from Smithland, IL to Cairo, IL. The Ice Committee also addresses river conditions impacting the Tennessee River and the Cumberland River. The Ice Committee is coordinated by a volunteer chairman from industry.

2.A.1.d.2. The River Industry Action Committee (RIAC) is a committee of the Upper Mississippi River and the lower Ohio River towing companies formed to address navigation problems during significant changes in river conditions such as extreme low water and high water events. The committee has evolved to address all issues concerning Upper Mississippi River navigation and is the major liaison between the towing industry, the Coast Guard, and the Army Corps of Engineers for river conditions for the entire UMR in MSU Paducah's AOR. RIAC is coordinated by a volunteer chairman from industry.

2.A.1.d.3. Lower Mississippi River Committee (LOMRC) is a committee of the Lower Mississippi River and the lower Ohio River towing companies formed to address navigation problems during significant changes in river conditions such as extreme low water and high water events. The committee has evolved to address all issues concerning Lower Mississippi River navigation and is the major liaison between the towing industry, the Coast Guard, and the Army Corps of Engineers for river conditions for the entire LMR in MSU Paducah's AOR. LOMRC is coordinated by a volunteer chairman from industry.

2.A.1.d.4. The Tennessee and Cumberland River Industry Committee (TCIC). This committee falls both in the MSD Nashville and the MSU Paducah AOR and serves as the primary committee for communicating among the towing companies operating on the Tennessee and Cumberland River within the Coast Guard Marine Safety Detachment Nashville and Marine Safety Unit Paducah Area of Responsibility. The TCIC Committee Chairman serves as the primary point of contact for relaying information, coordinating meetings, and setting up conference calls between all federal agencies and the towing industry. The primary purpose of the TCIC Committee is to address all issues concerning Tennessee and Cumberland River navigation and to act as the major liaison between the towing industry, the Coast Guard, the Tennessee Valley Authority and the Army Corps of Engineers throughout the Tennessee and Cumberland River Valleys.

2.A.2 Industry Points of Contact

AREAS ADDRESSED	COMPANY	MAIN POC	INDUSTRY GROUP	CONTACT INFO
Ohio River Allegheny River Monongahela River	Pittsburgh Airport	TRPRC Chairman Kevin Gurchak	Three Rivers Pollution Response Council (TRPRC)	412-472-3575 kgurchak@flypittsburgh.com
Ohio River Allegheny River Monongahela River	Ingram Barge	WAP Navigation Chairman/Vice President Eunice Crane Ratcliff	Waterways Association of Pittsburgh Industry	412-882-5428 c 412-225-9200 c eunice.ratcliff@ingrambarge.com
Ohio River Kanawha River	Amherst Madison	HDWA President Bill Barr	Huntington District Waterway Assoc. (HDWA)	304-926-1117 bbarr@portamherst.com
Ohio River Green River	AEP River Operations	CORMIG Chairman William "Rocky" Young	Central Ohio River Marine Industry Group (CORMIG)	270-441-2914 w 270-564-6149 c rocky.young@aclines.com
Ohio River	Ingram Barge Company	ICE Chairman Steve Southern	Ice Committee (ICE)	270-210-7726 c steve.southern@ingrambarge.com
Upper Mississippi River	ARTCO	RIAC Chairman Bernie Heroff	River Industry Action Committee (RIAC)	314-481-8828 w 314-803-4644 c bernard.heroff@adm.com
Lower Mississippi River	Ingram Barge Company	LOMRC Chairman Frank Johnson	Lower Mississippi River Committee (LOMRC)	270-441-1649 w 270-210-5912 c frank.johnson@ingrambarge.com
Tennessee River	Tennessee Valley Towing	TCIC Chairman Harley Hall	Tennessee & Cumberland River Industry Committee (TCIC)	270-554-0154 w 270-210-2338 c hhall@tennesseevalleytowing.com
Cumberland River	Tennessee Valley Towing	TCIC Chairman Harley Hall	Tennessee & Cumberland River Industry Committee (TCIC)	270-554-0154 w 270-210-2338 c hhall@tennesseevalleytowing.com

2.B. Federal Agencies

The United States Code (USC) provides regulatory authority for establishing and authorizing work or structures constructed within the navigable waterways and provides regulations for maintaining navigation throughout U.S. territorial waters. Included as part of a national waterway system are numerous rivers, lakes and streams that comprise the inland waterway system. Navigation on these “navigable waters of the United States” is regulated primarily by the USCG. The USACE provides technical advice to the USCG to enable that agency to properly evaluate and make decisions on navigation safety. The USACE is also responsible for authorizing waterway projects, evaluating and maintaining navigable channels, and directing emergency flood control operations (such as activation of spillways). The Tennessee Valley Authority (TVA) maintains jurisdiction on the Tennessee River and Cumberland River and monitors river conditions through flows discharged from locks and dams on these rivers, such as Kentucky Lock & Dam and Barkley Lock & Dam.

2.B.1 United States Coast Guard (USCG)

Title 14, USC, defines USCG roles and responsibilities in establishing and maintaining the safety of ports and waterways; 33 CFR Part 165.20 gives COTP’s and USCG District Commanders the authority to impose safety zones, security zones, and other restrictions to ensure the safe flow of navigation. Activities of the COTP’s are overseen by the Commander, Eighth Coast Guard District, in New Orleans, LA. Activities of the Marine Safety Unit Commanding Officers are overseen by the Commander, Sector Ohio Valley, in Louisville, KY.

2.B.1.a. Safety Advisory

The simplest form of intervention is a Navigation 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 USACE and industry-user groups. They can be originated by the USCG or self imposed by industry, and disseminated as a USCG Broadcast Notice to Mariners (BNM), Safety Marine Information Broadcast (SMIB) posted on the USACE bulletin board, posted on the River Industry Bulletin Board (RIBB), sent via the industry facsimile, or any combination of these methods. The purpose is to advise the marine industry of the existence of hazardous conditions and provide recommendations for navigating safely. Advisories can also be used to notify the marine industry of the Captain of the Port’s (COTP’s) intention to take action with respect to developing navigation conditions. Advisories are important tools that provide marine interests time to adjust their operations to avoid future problems.

2.B.1.b. Safety Zone

During extreme high or low water conditions the risk of commercial vessel navigation can become increasingly hazardous to the environment, persons and property. These extreme cases may require the establishment of a safety zone by the COTP that imposes vessel-operating restrictions. Consultation and deliberation with the 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 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, such as:

- 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 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.

2.B.1.c. Security Zone

In some cases a security zone may be implemented to protect persons, property and the environment from actual or potential threats related to terrorism or destruction. These extreme cases may require the establishment of a security zone by the COTP that imposes restrictions on a vessel or a specific area of the river. Consultation and deliberation with the USACE, and industry-user groups usually precede implementation of a security zone by the USCG. A security zone entails the control of a portion of the river, tributary, or harbor. This enables the USCG to control access and/or prescribe restrictions on vessels and persons. This approach can be applied to limited or large geographical areas and may involve simple or complex restrictions. The establishment of a security zone may include active control of vessel traffic and intensive screening of persons entering through an area.

2.B.1.d. Captain of the Port Order (COTP Order)

Captain of the Port Orders are specific directions to an individual, facility, or vessel. They are detailed and exact in scope. Issued under the authority of the Ports and Waterways Safety Act, compliance with COTP Orders is required, and failure may result in civil or criminal penalty action. In general, COTP Orders will only be used when a terminal or vessel appears to be operating in an unsafe manner or to reduce damage to the environment or property.

2.B.1.e. Area Maritime Security Plan

In the event activation of the Area Maritime Security Plan conflicts with the WAP, the requirements of the security plan shall take precedence.

2.B.2. United States Army Corps of Engineers (USACE)

Title 33 U.S.C., defines the USACE roles and responsibilities regarding development of, or change 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 operations to maintain the physical nature of a navigable channel on particular waterways. Generally, the USACE has the responsibility to maintain a nine foot congressionally authorized project depth within the navigable channel on the Ohio River System. The USACE is also responsible for directing emergency flood control operations and collecting information on flood stages and damage.

2.B.3. Tennessee Valley Authority (TVA)

Under the TVA Act of 1993, as amended, 6 U.S.C. 831 – 831 dd (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 fostering an orderly and proper, physical, economic, and social development of said areas. The broad responsibilities placed on the Tennessee Valley 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.

3. Communications:

3.A. Ohio River Communications Plan

3.A.1. MSU Pittsburgh AOR Communications Plan

If and when the Watch Phase occurs on the Ohio, Monongahela, or Allegheny Rivers, the WAP will enact the “Waterways Association of Pittsburgh Calling Tree” seen below. In order to ensure that this calling tree remains accurate, annual audits will be conducted to ensure the accuracy of these calling trees and any changes should be immediately reported to the WAP. In addition, when the trigger openings are met Coast Guard Marine Safety Unit (MSU) Pittsburgh will make notifications in accordance with Section 4 via Broadcast Notice to Mariners (BNM) through USCG Sector Ohio Valley Command Center.

ORGANIZATION	DESIGNATED CONTACT	PHONE NUMBERS	E-MAIL ADDRESS	WHEN CONTACTED
Waterways Association of Pittsburgh Navigation Committee	Eunice Crane Ratcliff, Navigation Committee Chairperson/Vice President	412-882-5428 - C 412-225-9200 - C	eunice.ratcliff@ingrambarge.com	All Situations
	Dan Lacek, President	724-743-9023 – W 412-926-2440 – C	dlacek@barges.us	Only when the above individual with the Waterways Association of Pittsburgh cannot be contacted
	Patrick Kelly, Secretary	724-933-4660 - W 724-816-0410 - C	hpmkelly@aepriverops.com	Only when the above individuals with the Waterways Association of Pittsburgh cannot be contacted

GOVERNMENT AGENCY	DESIGNATED CONTACT	PHONE NUMBER	E-MAIL ADDRESS	WHEN CONTACTED
Coast Guard	CDR Leon McClain Jr.	412-221-0807 ext. 210-W 412-670-4266 - C	leon.mcclain@uscg.mil	All waterways action events
USACE	John Dilla	412 395-7651 W 412-337-9587-W	john.p.dilla@usace.army.mil	All waterways action events
National Weather Service	Joe Palko	412-262-2582 x235-W 412-610-1798-C	joseph.palko@noaa.gov	Significant Weather Events

In addition, Coast Guard Sector Ohio Valley broadcasts river stages over VHF-FM radio channel 16. Scheduled broadcasts and river stages for the Ohio River and its tributaries are made at 11:00 a.m. EST. To obtain 24 hour information services, recorded messages on river gauges, predictions and weather forecasts with 7:00 a.m. and 1:00 p.m. updates, call these numbers:

Emsworth L/D – Ohio River	412-766-6213	Maxwell L/D – Monongahela River	724-785-5027
Pike Island L/D – Ohio River	304-277-2127	4 L/D – Allegheny River	724-224-0646

3.A.1.a. MSU Pittsburgh AOR Ice Communications

3.A.1.a.1 PURPOSE OF THE ICE COMMITTEE

During the course of the winter months, ice may form on the Allegheny, Monongahela, and Ohio Rivers. For significant ice events that affect navigational safety, the Pittsburgh Ice Committee will take appropriate actions to facilitate the reasonable demands of commerce. These actions are intended to promote navigational safety, provide for safety of life and property, and reduce the occurrences of marine casualties. When ice is so severe that it restricts vessel movement, the ice committee will impose navigational restriction for barges and vessels that intend to transit the affected areas.

The Pittsburgh Ice Committee is comprised of the Captain of the Port Pittsburgh, Waterways Association of Pittsburgh President and Head of the Navigation Committee, U.S. Army Corps Engineers – Pittsburgh District Representatives, and National Weather Service. A representative from MSU Huntington and Huntington Waterways Association President and Head of the Navigation Committee will also be invited to participate in ice teleconferences when the ice begins to affect safe navigation on the northern portions of MSU Huntington’s Area of Responsibility.

3.A.1.a.2 OBJECTIVES OF THE ICE WATCH

- A. Establish and maintain effective communications with Pittsburgh Ice Committee members to ensure the current and accurate reports of ice conditions are being reported.
- B. Utilize reports of ice conditions and NWS Forecasts to establish effective actions to mitigate ice condition and promote navigational safety.
- C. Planning and proper coordination of all available resources and manpower of industry, governmental agencies, and other affected interests.
- D. Promote and maintain a high degree of awareness for the safety of people, equipment, and the environment in all areas of committee involvement.

3.A.1.a.3 ORGANIZATION

- A. Task Organizations and Responsibilities
 - 1. U.S. Coast Guard MSU Pittsburgh –
 - a. Will host Ice Committee and Industry Teleconferences.
 - b. Chief of Prevention will Chair the Pittsburgh Ice Committee.
 - c. Waterways Management Division Officer will coordinate all U.S. Coast Guard day to day activities in support of the Ice Watch. Specifically, release situational reports and broadcast notices to mariners; create and maintain a yearly Ice Watch Folder. Engage the Waterways Association of Pittsburgh, Army U.S. Army Corps Engineers – Pittsburgh District, and National Weather Service.
 - d. U.S. Coast Guard Auxiliary will be utilized for over-flight, as available. Ice observers will be assigned to take photographs and document ice conditions. Ice photographs would be forwarded to the Ice Committee and appropriate industry personnel.
 - e. Captain of the Port Pittsburgh may establish waterway restrictions to promote safe navigation. Input from the Ice Committee will be evaluated before imposing any level of restriction. Information about waterway restrictions will be disseminated through broadcast notice to mariners. This information will also be passed at the Industry Ice Briefing.
 - f. At the conclusion of the ice event, MSU Pittsburgh will conduct an after action teleconference or meeting to discuss deltas and publish an After Action Report.

2. National Weather Service (NWS)-

- a. The National Weather Service Pittsburgh will initiate an Ice Watch for navigation interests operating on the Monongahela River, Allegheny River, and Ohio River down to Hannibal, Ohio. When it is determined that weather conditions will produce sufficient river ice to disrupt the normal flow of river traffic, the National Weather Service will email a calendar invite to host an Industry Ice Briefing, this briefing will be scheduled for one hour after the Ice Committee Meeting.
- b. The National Weather Service will maintain a file of photographs with large scale ice observations, information on unusual ice conditions, ice coverage, movement, or jamming.

3. Waterways Association of Pittsburgh (WAP)-

- a. Provide an industry perspective and compare the harshness of the forecast with industry's service requirements, and provide recommendations from a navigations standpoint to the Ice Committee. It is preferred that industry regulates themselves in safety restrictions prior to the COTP having to issue any COTP Orders.
- b. Maintain an industry contact list (Waterways Association of Pittsburgh Calling Tree) and disseminate the Ice Committee information and forward the National Weather Services Industry Ice Briefing invite.
- c. Collect and provide ice observations, information on unusual ice conditions, ice coverage, movement, jamming, and photographs to the National Weather Service.

4. Army Corps of Engineers (ACE)-

- a. Provide status of conditions and operational restrictions and limitations of the locks and dams (ice lockages, mooring bits, bulkheads, etc.).
- b. Provide recommendations on tow configurations that can facilitate operations (tow sizes, rake to rake, etc.).
- c. Collect and provide to the Coast Guard violations of Safety Zone or Regulated Navigation Area restrictions.
- d. Collect and provide ice observations, information on unusual ice conditions, ice coverage, movement, or jamming and photographs to the National Weather Service.

3.A.1.a.4 MEETINGS

A. Schedule

1. A Pre-ice season meeting will be held the first week in December. This meeting will discuss the Sector Ohio Waterways Action Plan and the previous season's After Action Report.
2. Ice Committee meetings will be held every Monday from January through March at 1000 (calendar invites will be sent out). If there is anticipated extreme icing conditions, additional meetings will be scheduled for Wednesday and/or Friday at 1000, otherwise no other meetings will occur for that week.
3. If ice conditions are expected, an Industry Ice Briefing will be scheduled for one hour (1100) after the start of the Ice Committee Meeting. This briefing will be a webinar coordinated by the National Weather Service, to provide a quick summary (this should not be a complete rehashing of the Ice Committee Meeting just the highlights) to interested industry personnel on the Ice Committees results.

B. Ice Committee Meeting Agenda

1. The Coast Guard Chief of Prevention will Chair and open the meeting.
 2. The National Weather Service (NWS) will discuss the weather conditions and forecast; when heavy ice formation will begin and the amount of ice that will be expected (coverage and thickness) on which of the rivers. NWS will also give predictions as to when weather and ice conditions are expected to improve.
 3. The Army Corps will discuss the current lock and dam conditions, schedule of bulkhead installation, ice buildup, ice lockage, and violations of Safety Zone or Regulated Navigation Area restrictions.
 4. Waterways Association of Pittsburgh will discuss the current conditions found on the rivers, trouble areas, cargo delivery shortages, and mitigation strategy recommendations.
 5. Mitigating factors will be discussed and trigger points will be agreed upon before icing begins to affect navigation. Some of these strategies may include, but are not limited to, requiring specific tow configuration (specify what size barges in max configuration), vessel horsepower restrictions, and any other safety requirements needed to deal with specific ice conditions. When conditions are reached that require a Safety Zone or Regulated Navigation Area, the following will be put into place in addition to those recommended by the committee:
 - a. Tank barges moving into, out of, or within the RNA must report to the MSU Pittsburgh Marine Duty Officer:
 - 1) The product name and total capacity should be reported;
 - 2) Origin and destination of tank barges along with their ETA;
 - 3) Owner/operator and name of towing vessel pushing barges; and,
 - 4) Towing vessel's 24 hour telephone number.
 - b. Tank barges will be protected by other barges in tow, if possible (will not be lead barges).
 - c. Vessels that become beset in ice must report their status to the Sector Ohio Valley Command Center.
 - d. All mooring devices, wires, chains, lines, and connecting gear are of sufficient strength and in sufficient number to withstand forces that may be exerted on them by moored vessels/barges.
 6. The Coast Guard will establish any Safety Zone, put out a Broadcast Notice to Mariners and SITREPS as needed, of all restrictions agreed upon by the Ice Committee, and notify other waterway users (Safe Boating Council, and facility managers, etc.).
-

EXAMPLE BNM:

FM COGARD MSU PITTSBURGH PA
TO COMCOGARD SECTOR OHIO VALLEY LOUISVILLE KY

BT

UNCLAS

SUBJ: REQUEST BROADCAST NOTICE TO MARINERS BEGINNING *INSERT DATE*.

1. THE U. S. COAST GUARD CAPTAIN OF THE PORT (COTP) PITTSBURGH, IN CONJUNCTION WITH THE WATERWAYS ASSOCIATION OF PITTSBURGH, HAS ISSUED THIS SAFETY ADVISORY DUE TO ICE ACCUMULATIONS ON THE ALLEGHENY, MONONGAHELA AND OHIO RIVERS. IT IS IMPERATIVE THAT ALL NECESSARY ACTIONS BE TAKEN TO MITIGATE THE RISKS POSED BY THESE CONDITIONS AND THAT ALL MARINERS EXERCISE EXTREME CAUTION. FACILITY OPERATORS AND FLEETING AREA MANAGERS ARE REMINDED TO REVIEW THEIR FLEETING PROCEDURES ENSURING THE CONTINUOUS SURVEILLANCE OF FLEETING AREAS, ENSURE FLEETS ARE SECURED WITH AN ADEQUATE NUMBER OF LINES, THAT LINES ARE DOUBLED-UP AT THE HEAD OF THE FLEET, AND SECURING TOWBOAT ASSISTANCE IF NECESSARY.

BT

NNNN

FM COGARD MSU PITTSBURGH PA
TO COMCOGARD SECTOR OHIO VALLEY LOUISVILLE KY

BT

UNCLAS

SUBJ: REQUEST BROADCAST NOTICE TO MARINERS BEGINNING *INSERT DATE*.

SIGNIFICANT ICE ACCUMULATION IS FORMING IN THE VICINITY OF **[MILE NUMBER]** ON THE **[ALLEGHENY-MONONGAHELA-OHIO RIVER]**. MARINERS MUST REPORT ALL VESSELS THAT CANNOT MAKE WAY DUE TO ICE AND TANK BARGE MOVEMENT INTO AND WITHIN THE CAPTAIN OF THE PORT PITTSBURGH ZONE. VESSEL RESTRICTIONS AND TOW CONFIGURATION REQUIREMENTS MAY BE IMPOSED TO FACILITATE SAFETY TRANSIT AND LOCKAGES IN THE AREA. ALL MARINERS ARE URGED TO USE EXTREME CAUTION WHEN TRANSITING THE AREA. THE COAST GUARD CAN BE REACHED ON VHF-FM CHANNEL 16.

BT

NNNN

EXAMPLE SITREP:

FM COGARD MSU PITTSBURGH PA
TO COMCOGARD SECTOR OHIO VALLEY LOUISVILLE KY
INFO CDRUSAED PITTSBURGH PA
CCGDEIGHT NEW ORLEANS LA//DP/DPB/DPW/DR/DW//
COGARD MSU HUNTINGTON WV
COGARD MSD CINCINNATI OH
COGARD AIRSTA DETROIT MI
COMCOGARD SECTOR UPPER MISSISSIPPI RIVER ST LOUIS MO
USCGC OSAGE

BT

UNCLAS //N03006//

FM COGARD MSU PITTSBURGH PA

SUBJ: SITREP ONE, ICE CONDITIONS ON THE ALLEGHENY, MONONGAHELA, AND OHIO RIVER.

A. OHIO RIVER VALLEY WATERWAYS ACTION PLAN.

1. SITUATION: THE MSU PITTSBURGH AOR HAS EXPERIENCED SEVERAL WEEKS OF SUB-FREEZING TEMPERATURES. AS A RESULT, ACCUMULATIONS OF ICE HAVE FORMED ON ALL RIVERS WITHIN THE ZONE. NAVIGABLE CHANNELS REMAIN OPEN TO VESSEL TRAFFIC, WITH THE EXCEPTION OF THE UPPER REACHES OF THE XXXXXX RIVER BEYOND LD #X. WEATHER FORECASTS FOR THE AREA INDICATE A HIGH/LOW PROBABILITY OF SNOW/FREEZING RAIN OVER THE NEXT 48 HOURS WITH TEMPERATURES EXPECTED TO RISE TO/FALL TO/STABILIZE BETWEEN XX-XX DEGREES FARENHEIT, INCREASING/DECREASING THE LIKELIHOOD OF NEW ICE FORMATION OR BUILD-UP.

2. ACTION TAKEN:

INSERT DTG: MSU PITTSBURGH HOSTED A TELECONFERENCE WITH THE PITTSBURGH ICE COMMITTEE WHICH INCLUDES MEMBERS FROM USACE, NWS, AND LOCAL INDUSTRY TO ASSESS CURRENT OPERATING CONDITIONS.

INSERT DTG: LIST RESTRICTIONS

3. FUTURE PLANS:

A. ICE COMMITTEE TELECONFERENCE SCHEDULED FOR *INSERT DTG*.

B. CGAUX OVERFLIGHT OF AOR SCHEDULED FOR *INSERT DTG*.

C. MSU PITTSBURGH WILL CONTINUE TO MONITOR SITUATION WITH INDUSTRY STAKEHOLDERS AND INITIATE OVERFLIGHTS AS NECESSARY. COTP PITTSBURGH WILL CONSIDER INPUT PROVIDED BY ALL INVOLVED AND APPLY VESSEL RESTRICTIONS, AS NEEDED, BASED UPON CHANGING CONDITIONS WITHIN THE MSU PITTSBURGH AOR.

BT

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3.A.2. MSU Huntington AOR Communications Plan

COMPANY / ORGANIZATION	DESIGNATED CONTACT	PHONE	EMAIL	WHEN CONTACTED
AEP Gavin Plant & AEP John Amos Plant	Gary McGraw	304-256-2707 304-542-0050	glmcgraw@aep.com	All Situations
AEP River Operations	Greg Walburn	304-675-4709	glwalburn@AEPriverops.com	All Situations
American Styrenics Marietta	Douglas Currey	740-374-0214	djcurrey@amstyrenics.com	All Situations
Amherst Madison, Inc. (HDWA President)	Bill Barr	304-926-1140 24-hr 304-926-1117 o	bbarr@portamherst.com	All Situations
Amherst Madison, Inc.	Jim Jarrell Alan Hall VP Operations	304-926-1110 o	jjarrell@portamherst.com	All Situations
Asphalt Materials Plant	Josh Gregory	740-374-5100 740-629-2806	josh.gregory@asphalt-materials.com	All Situations
Baker Oil Company	Tim Comer	304-442-2439 304-678-7366	bakeroilterminal@yahoo.com	All Situations
Century Lubricants (Fuchs)	Daniel Riffle	304-523-3716 x16	driffle@fuchs.com	All Situations
Ceredo Liquids (KRT)	Brad Tiller	304-526-0700 606-315-6692	BDTiller@Suncoke.com	All Situations
Chemours Chemicals Belle (DuPont)	Chris Gautier	304-357-1829 304-989-2067	Christopher.L.Gautier@chemours.com	All Situations
Chemours Washington Works (DuPont)	Randy Lowe	304-863-4059 304-863-4240	randall.lee.lowe@chemours.com	All Situations
Crouse Corp.	Michael Kidd	606-564-6843 606-407-0472	mkidd@crouse.com	All Situations
Docks Creek	John Morrison	304-453-4000	jmorrison@rtcltd.com	All Situations
Dominion Transmission-Bens Runs	Terry Vass	804-921-1379 804-771-3161	Terry.Vass@dom.com	All Situations
Dow Chemical Institute & Dow Chemical Charleston	Mary Byrd	304-747-4562 w 304-747-2611	byrdml@dow.com	All Situations
Ergon Terminaling	Brian Hadley	740-473-2781 w	Brian.hadley@ergon.com	All Situations
Ergon LLC	Jim Wallin	740-533-0000 800-926-2343	jim.wallin@ergon.com	All Situations
Excell Marine	Gordon Putzke	513-560-5553	gputzke@excellmarine.com	All Situations
Go-Mart Inc. Amandaville Terminal	John O'Dell	304-727-5423 304-288-4095	jodell@wvdsi.net	All Situations
Hardin Street Marine	Jamie Alcorn	606-739-2404 606-465-9565	jralcorn@marathonpetroleum.com	All Situations
Kanawha Harbor Fleeting	John Snodgrass	304-675-5255 w	jsnodgrass@portamherst.com	All Situations
Kirby Institute Barge Fleeting	Doug Hodges Duty Watchman	304-747-4568 304-552-2679 304-727-1091 24h	doug.hodges@kirbycorp.com	All Situations
Kokosing Materials	Jerry Jones	740-574-4770 614-207-8574	kmi512@kokosing.biz	All Situations

COMPANY / ORGANIZATION	DESIGNATED CONTACT	PHONE	EMAIL	WHEN CONTACTED
Kraton Polymers	Mike Chevalier	740-423-2384	mike.chevalier@kraton.com	All Situations
M & G Polymers	Rodney Bumgarner	304-576-4510 304-674-5723	rodney.a.bumgarner@gruppomgus.com	All Situations
Marathon Oil Company	David Earl Fred Nyhuis	606-739-2442 606-739-2503	daearl@marathonpetroleum.com fanyhuis@marathonpetroleum.com	All Situations
Marathon Petroleum	Fred Nyhuis	606-739-2503	fanyhuis@marathonoil.com	All Situations
Marietta Industrial Enterprises	William Elliott	740-373-2252	bmellio9tt@miecorp.com	All Situations
Mark West Energy Appalachia, LLC	Bob Waddell	606-932-3111 606-923-8423	bwaddell@markwest.com	All Situations
McGinnis, Inc.	Gary Gills	740-377-4391 w	ggills@MCGINNISINC.com	All Situations
MPC Charleston	Roger Miller	304-347-1059 304-741-2833	rdmiller@marathonpetroleum.com	All Situations
MPC Inc. - Harbor Dispatch & MPLX Kenova Terminal	Nick Newlon	606-921-3137 w	nknewlon@marathonpetroleum.com	All Situations
MPLX Charleston	John Cole	304-347-1058 w	jrcole@marathonpetroleum.com	All Situations
MPC Kenova Terminal	Barry Blankenship	606-921-3137 304-208-1760	bblankenship@marathonoil.com	All Situations
MPLX Marietta	Charles Bradley	740-374-5067 513-208-6773	cwbradley@marathonpetroleum.com	All Situations
MPLX Terminals-Big Sandy Refinery – Marathon Oil	Ed McCall	606-921-2536 606-920-3164	jemccall@marathonpetroleum.com	All Situations
N&S Railroad	Chris Davis	740-354-8233	chris.davis@nscorp.com	All Situations
Neale Fleeting	Richard Neale Jr.	304-295-4223 304-834-0758	nealesfleet@hotmail.com	All Situations
Nova Chemicals(Caretaker Status)	Denver Drake	740-568-3200	denver.drake@ineos-nova.com	All Situations
Ohio Oil Gathering Corp.	Garrett Fleming	740-473-2711 740-525-0204	garrett.fleming@enlink.com	All Situations
Ohio River Sanitation Commission	Sam Dinkins	513-231-7719 x108	sdinkins@orsanco.com	All Situations
Orion Engineered Carbons	Josh Ankrom	740-423-9571 w	josh.ankrom@OrionCarbons.com	All Situations
R&D Associates	Don Salyers	606-739-4166	rdassoc299@windstream.net	All Situations
Safety-Kleen Systems, Inc.	Joey Coulter	304-755-4279 304-741-0072	joey.coulter@safety-kleen.com	All Situations
Saint Mary's Refining	Dale Colvin	304-684-2222 304-483-7582	stmarys@gomart.com	All Situations
Shelly Liquid	Rick VanGundy	740-441-1703	rvangundy@shellyco.com	All Situations
Union Carbide (Dow Hanging Rock)	Rocky White	740-533-4140 740-646-2468	rtwhite@dow.com	All Situations

GOVERNMENT AGENCIES	DESIGNATED CONTACT	PHONE	EMAIL	WHEN CONTACTED
USCG MSU Huntington Duty Officer	Not applicable	304-563-9084	Not applicable	All Situations
USCG MSU Huntington Commanding Officer	CDR Tanya Giles	304-733-0198	tanya.l.giles@uscg.mil	All Situations
USCG MSU Huntington Prevention Department	LT Colleen Smith	304-733-0198	colleen.m.smith@uscg.mil	All Situations
WV Dept of Natural Resources	Major Brad DeBord	304-558-2784 304-759-0703 (D5 DNR)	Brad.C.DeBord@wv.gov	All Situations
USACE, Huntington District	Kent Browning	304-399-5239	kent.c.browning@usace.army.mil	All Situations
USACE, Huntington District	Domenico Chianesi	304-399-5652	domenico.chianesi@usace.army.mil	All Situations
National Weather Service, Charleston, WV	John Sikora	304-746-0180 304-746-0190	John.Sikora@noaa.gov	All Situations
OH Dept of Natural Resources	CAPT Carl Vance	740-353-8257	carl.vance@dnr.state.oh.us	All Situations

3.A.3. Sector Ohio Valley (Louisville) AOR Communications Plan

COMPANY/ ORGANIZATION	DESIGNATED CONTACT	PHONE NUMBER	E-MAIL ADDRESS	WHEN CONTACTED
Agrium	Jerrod Prather	812-838-9779	jerrod.prather@agrium.com	All Situations
Agrium US	Gill Craig	513-467-7314	Gill.Craig@agrium.com	All Situations
American Commercial Barge Lines	David Lewis	812-288-0333	david.lewis@aclines.com	All Situations
American Electric Power (AEP)	Greg Walburn	304-675-4709	glwalburn@AEPriverops.com	All Situations
Argosy Casino and Hotel	Mark Mason	812-539-8112	mark.mason@argosy.com	All Situations
Arrow Terminals LP NAS Dock	Bob Buchanan	502-347-0033 x112	robert_buchanan@kindermorgan.com	All Situations
BB Riverboats	Alan Bernstein	859-292-2449	abernstein@bbriverboats.com	All Situations
Beckjord Power Station	Christina Hoxie	513-255-1881	christina.hoxie@duke-energy.com	All Situations
Belle of Louisville	Capt Mark Doty	502-817-4565	mark.doty@louisvilleky.gov	All Situations
Belterra Casino and Resort	Ken Bennet	812-427-7739	kbennett@belterracasino.com	All Situations
BP Oil Pipeline Company	Mark Riesen	419-618-0941	mark.riesen@bp.com	All Situations
Buckeye Terminals	Jeff Littlefield	502-776-4671	jlittlefield.@buckeye.com	All Situations
CF Industries Inc.	Chuck Polage	812-838-4851	cpolage@cfindustries.com	All Situations
Chevron USA	Pat McCloud	502-775-1018	PMcCloud@chevron.com	All Situations
Cincinnati Bulk Terminal	Bill Huser	513-621-4800 x228	bhuser@cinbulk.com	All Situations
Citgo Petroleum Corp	Bill Wieneke	502-447-1030	wwienek@citgo.com	All Situations
Clark Maritime Center	Brian Sieg	812-283-9662	bsieg@portsofindiana.com	All Situations
Consolidated Grain and Barge	Tim Bender	270-822-4241	Tim.bender@cgb.com	All Situations
Countrymark Cooperative	Eugene Grabert	812-455-1392	gene.grabert@countrymark.com	All Situations
Countrymark Henderson Terminal	Eugene Grabert	812-455-1392	gene.grabert@countrymark.com	All Situations
Crops Production Services	Mike Goodall	270-852-7842	mike.goodall@cpsagu.com	All Situations
Crouse Corp.	Michael Kidd	606-564-6843	mkidd@crouse.com	All Situations
Dart Polymers Inc.	Ross Fogle	270-926-3434	Ross_fogle@dart.biz	All Situations
Dow Chemical Co.	Mark Reichenbach	502-449-5318	hmreichenbach@dow.com	All Situations
Dow Corning	Mark Stewart	502-732-2000 x2202	mark.w.stewart@dowcorning.com	All Situations
Evansville Marine Service	Elward Sights	812-424-9278	elwards@ems-harbors.com	All Situations
Excell Marine	Matt Becker	513-792-9291	mbecker@excellmarine.com	All Situations

COMPANY/ ORGANIZATION	DESIGNATED CONTACT	PHONE NUMBER	E-MAIL ADDRESS	WHEN CONTACTED
Fall City Towing	Chad McBride	502-339-1410	chad@fallcitytowing.com	All Situations
Five M Transportation	Wayne McBride	502-893-5975	gwaynemcbride@aol.com	All Situations
General Electric Plastics	Jess Roberts	812-831-7607	Jess.Roberts@ge.com	All Situations
Glenmore Distillery	Barry Grace	270-688-9316	bgrace@glenmoredistillery.com	All Situations
Grand Victoria Casino & Resort	Thomas Sanders	812-438-5029	tom.sanders@grandvictoria.com	All Situations
Indiana Port Commission	Brian Sieg	812-283-9668	bsieg@portsofindiana.com	All Situations
INEOS ABS	Timothy Benter	513-467-2403	timbenter@ineos.com	All Situations
IN-KY Electric	Kyleen Center	812-265-8714	kcenter@ovec.com	All Situations
Kinder Morgan	Derek Fogle	270-264-1045	Derek_fogle@kindermorgan.com	All Situations
Kinder Morgan	Jason Denlinger	513-871-9018 x17	jason_denlinger@kindermorgan.com	All Situations
Kirby Inland Marine	Jay McDaniel	225-201-3006	Jay.McDaniel@kirbycorp.com	All Situations
MAP/LLC Mt. Vernon	Ben Hill	812-838-2867	rbhill@marathonpetroleum.com	All Situations
MAP/LLC Clarksville/Louisville	Mike Leins	502-772-5200	mulleins@marathon.com	All Situations
MAP/LLC Evansville	Kevin Klinger	812-425-3195	keklinger@marathonpetroleum.com	All Situations
Marathon Ashland Asphalt	Bill Mihaly	513-941-4400 x227	wfmihaly@marathonpetroleum.com	All Situations
Marathon Ashland Co.	Dennis Stauffer	513-451-0485 x237	sdstauffer@marathonpetroleum.com	All Situations
Marathon Ashland Covington	Joe Moran	859-240-2015	jwmoran@marathonpetroleum.com	All Situations
Marathon Ashland Petro	Fred Nyhuis	606-326-2503	fanyhuis@mapllc.com	All Situations
Marathon Petroleum	Ben Hill	812-838-2867	rbhill@marathonpetroleum.com	All Situations
McGinnis, Inc.	Don Blum	513-200-8013	dblum@mcginnisinc.com	All Situations
McGinnis, Inc.	Doug Hedrick	513-200-5380	dhedrick@mcginnisinc.com	All Situations
Momentum Specialty Chemicals	Jeff Durbin	502-449-6319	jeffrey.durbin@momentive.com	All Situations
Mosaic Phosphates	Dan Oldham Chris Compton	270-826-6231 270-826-6231	Daniel.oldham@mosaicco.com Christopher.Compton@mosaicco.com	All Situations
Mt. Vernon Barge Service	Josh Williams	812-838-4889	j.williams@mvbarge.com	All Situations
Mulzer Crushed Stone, Inc.	Matthew Bunner	812-547-1400 x50161	mattbunner@mulzer.com	All Situations
Ohio Valley Marine Service	Butch Branson	270-826-9165	cebutch@ovmarine.com	All Situations
Owensboro Grain Co./Edible Oils	Steve Coomes	270-926-2032	scoomes@owensborograin.com	All Situations
Peter Cremer	Mike Doll	513-616-4915	mdoll@petercremerna.com	All Situations

COMPANY/ ORGANIZATION	DESIGNATED CONTACT	PHONE NUMBER	E-MAIL ADDRESS	WHEN CONTACTED
Port of Indiana-Mt. Vernon	Phillip Wilzbacher	812-833-2166	pwilzbacher@portsofindiana.com	All Situations
Queen City Terminals	Robert Nolan	859-292-8687	bohnolan@fuse.net	All Situations
Southern States	Fred Greenwell	270-683-0146	fred.greenwell@sscoop.com	All Situations
Tanco Clark Maritime LLC	Kimberly Moran	812-280-7300	kmoran@wolflakeinc.com	All Situations
Thornton Transportation	Judy Jesse	502-664-7923	judyj@thorntonsinc.com	All Situations
Transmontaigne Evansville	Billy Pircey	812-423-5427 w	bpircey@transmontaigne.com	All Situations
Transmontaigne Henderson	Jeff Walker	270-830-6187	jwalker@transmontaigne.com	All Situations
Transmontaigne Kentuckiana	Chuck Harris	812-948-2458	charris@transmontaigne.com	All Situations
Transmontaigne Louisville	Chuck Harris	502-772-7575	louisville@transmontaigne.com	All Situations
Transmontaigne Owensboro	Chris Weeks	270-691-0096	cweeks@transmontaigne.com	All Situations
Transmontaigne Cincinnati	Art Hilton	859-462-3465	ahilton@transmontaigne.com	All Situations
Westway	Mark Pickering	513-921-8441	Mark.pickering@westway.com	All Situations
Wooten's River Service	James Cruse	502-896-0317	james@wootenriverservice.com	All Situations
Yager Materials, Inc.	Chris Crumes	270-926-3611	chris.crumes@yagermaterials.com	All Situations

3.A.4. MSU Paducah AOR Communications Plan

COMPANY / ORGANIZATION	DESIGNATED CONTACT	PHONE NUMBER	E-MAIL ADDRESS	WHEN CONTACTED
AEP River Operations	Kenny Underhill William "Rocky" Young Mike Morris		klunderhill@aepriverops.com wyoung@aepriverops.com mlmorris@aepriverops.com	All Situations
American Commercial Barge Line (ACBL)	Harold Dodd _____ Tom Damotte	618-734-0841 w _____	Harold.dodd@aclines.com Tom.damotte@aclines.com	All Situations
ARTCO	Bruce Hussell	314-481-8828 w	b_hussell@admworld.com	All Situations
Crouse Corporation	Randy Bowling	270-444-9611w	rbowling@crouse.com	All Situations
Florida Marine	Jerry Wiltz Troy Hotard David Goin		Jerry.wiltz@flmarine.com Troy.hotard@flmarine.com David.goin@fmdry.com	All Situations
Hunter Marine	Reggie Tubbs	270-444-7011w	rtubbs@huntermarine.net	All situations
Ingram Barge Co.	Billy Poindexter Jr. _____ David Edgin _____ Steve Southern _____ Frank Johnson _____ John Operle	270-441-1638 w _____ 270-441-1646 w _____ 270-441-1634 w _____ 270-441-1649 w _____ 270-441-1606 w	Billy.PoindexterJr@ingrambarge.com david.edgin@ingrambarge.com 24HR Dispatch: 270-441-1630 Steve.southern@ingrambarge.com Frank.johnson@ingrambarge.com John.operle@ingrambarge.com	All Situations
Inland Marine Service	Dave Hammond	859-689-7707 w	dhammond@inlandmarineservice.com	All Situations
Kirby Inland Marine	<u>Shannon Hughes</u> Jimbo Gibbens	_____ 225-201-3007 w	Shannon.Hughes@kirbycorp.com Jimbo.Gibbens@kirbycorp.com	All Situations
Luhr Brothers, Inc.	Mike Dunn _____ <u>Rodney Linker</u> Lloyd Miller (HSE)	618-281-4106 w _____ _____	mdunn@luhr.com rlinker@luhr.com lmiller@luhr.com	Low Water Dredging Operations / Surveys

COMPANY / ORGANIZATION	DESIGNATED CONTACT	PHONE NUMBER	E-MAIL ADDRESS	WHEN CONTACTED
Magnolia Marine	Michael Carpenter	800-696-5921(24 hrs) 601-802-8613 w	Michael.carpenter@ergon.com	All Situations
Marathon Petroleum Corporation	Office number Mike Burdick James Mathis Adam Rhoden Greg Erwin	606-739-2485 w <u>606-739-2443 w</u>	mcburdick@marathonpetroleum.com jmmathis@marathonpetroleum.com awrhoden@marathonpetroleum.com gserwin@marathonpetroleum.com	All Situations
Marquette Transportation	Gary Frayser	270-744-4312 w	gfrayser@marquettettrans.com	All Situations
McGinnis, Inc - Excell Marine	Robert Englert Ron Lauder		renglert@nmrky.com rlauder@mcginnisinc.com	All Situations
National Maintenance & Repair of Kentucky	Larry Salyers Bob Michel Will Colinger (HSE) Ron "Bo" Lauder		lsalyers@nmrky.com bmichel@nmrinc.com wcolinger@nmrky.com rlauder@mcginnisinc.com	All Situations
Pine Bluff Materials Co.	Gene Whelan	615-514-1458 w	Gene.whelan@pbmat.com	All Situations
River Marine Enterprises	David Smith	270-534-5693 w	davidsmith.rme@gmail.com	All Situations
Seamen's Church Institute	Dave Dewey	270-575-1005 w	ddewey@seamenschurch.org	Industry Assistance
Tennessee Valley Towing	Harley Hall Gordon Southern	270-554-0154 w _____	hhall@tennesseevalleytowing.com gsouthern@tennesseevalleytowing.com	All Situations
Western Rivers Boat Management	Ronnie Griffin	270-444-4772 w	rgriffin@westernriversboat.com	All situations

GOVERNMENT AGENCY	DESIGNATED CONTACT	PHONE NUMBER	E-MAIL ADDRESS	WHEN CONTACTED
U.S. Coast Guard	CAPT Michael Zamperini	502-779-5411	Michael.B.Zamperini@uscg.mil	All Situations
Sector Ohio Valley	CDR Eric Denley	502-779-5412	eric.d.denley@uscg.mil	All Situations
Sector Command	CDR Molly Wike	502-779-5448	molly.a.wike@uscg.mil	All Situations
U.S. Coast Guard Sector Ohio Valley Buoy Tenders	BOSN James Todd Sector SOHV Comms Center	502-779-5301 1-800-253-7465	James.A.Todd@uscg.mil	Aids to Navigation Issues
U.S. Coast Guard MSU Paducah	<u>CDR Mark Sawyer</u> LT Takila Powell	<u>270-442-1621 x 2101 w</u> <u>270-442-1621 x 2110 w</u>	Mark.C.Sawyer@uscg.mil Takila.S.Powell@uscg.mil	All Situations
U.S. Army Corps of Engineers Louisville District Office	Chief of Technical Support Tracey Keel	502-315-6694 w	tracey.l.keel@usace.army.mil	Dredging Ops Nav Channel Surveys
U.S. Army Corps of Engineers Louisville District Office	Chief, Operations Division Gene Dowell	502-315-6731 w	eugene.a.dowell@usace.army.mil	All Situations
U.S. Army Corps of Engineers Louisville District Office	District L&D Manager Waylon Humphrey	502-315-6695 w	waylon.d.humphrey@usace.army.mil	Lock & Dam Operations
U.S. Army Corps of Engineers Louisville District Smithland Lock and Dam	Smithland Lockmaster Jeffrey Kelly	618-564-2315 w	jeffrey.w.kelly@usace.army.mil	Ohio River Low / High Water
U.S. Army Corps of Engineers Louisville District L&D 52, L&D 53, and Olmsted	Area Lockmaster L&D52/53/Olmsted Jimmy Nix	618-564-2842 w	James.L.Nix@usace.army.mil	Ohio River Low / High Water
U.S. Army Corps of Engineers Louisville District Lock and Dam 52	52 Lockmaster Luther Helland	618-564-2842 w	luther.j.helland@usace.army.mil	Ohio River Low / High Water
U.S. Army Corps of Engineers Louisville District Lock and Dam 53	53 Lockmaster Randy Robertson	618-742-6213 w	Charles.R.Robertson@usace.army.mil	Ohio River Low / High Water
U.S. Army Corps of Engineers Cairo, IL GAUGE Reading	Cairo, IL GAUGE Phone Number	901-544-3634 800-317-4156 x3634	Not Applicable	Ohio River Low / High Water
U.S. Army Corps of Engineers Nashville District (Kentucky/Barkley Lock and Dam)	Lockmaster John "Caleb" Skinner	270-362-4226 w	john.c.skinner@usace.army.mil	Ohio River: Low Water Cumberland River: Low / High Water

GOVERNMENT AGENCY	DESIGNATED CONTACT	PHONE NUMBER	E-MAIL ADDRESS	WHEN CONTACTED
Tennessee Valley Authority (Kentucky and Barkley L&D)	<u>River Forecast Center (lead engr)</u> Nikki Berger	865-632-7063 (24 hr) 865-632-8980 w	rsolead@tva.gov ncberger@tva.gov	Ohio River Low Water
U.S. Army Corps of Engineers Paducah, KY Flood Protection Project Levee Manager	Superintendent Kenny Brannon	270-444-8563 w	kbrannon@paducahky.gov	Ohio River High Water Levee Concerns
U.S. Army Corps of Engineers Brookport, IL Flood Protection Project Levee Manager	Mayor Johnny Klaffer	618-564-2351 w	citygov@shawneelink.net	Ohio River High Water Levee Concerns
U.S. Army Corps of Engineers Golconda, IL Flood Protection Project Levee Manager	Mayor Bill Altman	618-683-3341	citygol@shawneelink.com	Ohio River High Water Levee Concerns
U.S. Army Corps of Engineers Rosiclare, IL Flood Protection Project Levee Manager	Wastewater Superintendent Mike Smith	618-285-3383	No email	Ohio River High Water Levee Concerns
U.S. Army Corps of Engineers Sturgis, KY Flood Protection Project Levee Manager	Superintendent Public Works Jeff Wilson	270-333-2166	cosgov@earthlink.net	Ohio River High Water Levee Concerns
U.S. Army Corps of Engineers Shawneetown, IL Flood Protection Project	Superintendent Laurence Randall		thevillageofoldshawneetown@gmail.com	Ohio River High Water Levee Concerns
U.S. Army Corps of Engineers Nashville District Cumberland River Water Control Issues	Anthony Rodino	615-736-5675 w	Anthony.Rodino@usace.army.mil	Cumberland River: Low / High Water
Tennessee Valley Authority Tennessee River Water Control Issues	TVA – Nikki Berger	865-632-8980 w	ncberger@tva.gov	Tennessee River: Low / High Water

3.A.4.a. Ohio River (Cairo-Smithland) Towing Industry Communications Plan (ICE)

The Ohio River Ice Committee (ICE) MSU Paducah AOR is an ad hoc committee of the Ohio River towing companies formed to address navigation problems during the major ice event of 1977 – 1978 on the Ohio River. Subsequent to this crisis, the committee has evolved to address all issues concerning Ohio River navigation, especially issues related to river conditions in the Lower Ohio River Valley area, and is the major liaison between the towing industry, the Coast Guard, and the Army Corps of Engineers stretching from Smithland, IL to Cairo, IL. The Ice Committee also addresses river conditions impacting the Tennessee River and the Cumberland River. The Ice Committee is coordinated by a volunteer chairman from industry.

COMPANY / ORGANIZATION	DESIGNATED CONTACT	PHONE NUMBER	E-MAIL ADDRESS	WHEN CONTACTED
American Commercial Barge Line (ACBL)	Harold Dodd Tom Damotte	618-734-0841 w _____	harold.dodd@aclines.com tom.damotte@aclines.com	All Situations
ARTCO	Bruce Hussell	314-481-8828 w	b_hussell@admworld.com	All Situations
C & B Marine	Chad Bray Vicky Schottelkotte	<u>859-746-2666</u>	chad@carlislebray.com vickys@carlislebray.com	All Situations
Campbell Transportation	Rich Kreider	724-743-9010 w	rkreider@barges.us	All Situations
Canal Barge Line	Paul Barnes	504-581-2424 w	pbarnes@canalbarge.com	All Situations
Crouse Corporation	Randy Bowling	270-444-9611	rbowling@crouse.com	All Situations
Florida Marine	Jerry Wiltz Troy Hotard David Goin		jerry.wiltz@flmarine.com troy.hotard@flmarine.com David.Goin@fmtdry.com	All Situations
Golding Barge Line	Todd Hundley	601-629-9800	thundley@goldingbarge.com	All Situations
Hunter Marine	Glenn Hendon Reggie Tubbs	615-352-6935w _____ 270-444-7011 w	hmt@bellsouth.net rtubbs@huntermarine.com	All Situations

COMPANY / ORGANIZATION	DESIGNATED CONTACT	PHONE NUMBER	E-MAIL ADDRESS	WHEN CONTACTED
Ingram Barge Co.	Ed Henleben Frank Johnson John Operle David Edgin	618-286-1517 w 270-441-1649 w 270-441-1606 w 270-441-1646 w	Ed.Henleben@ingram.com Frank.johnson@ingrambarge.com John.operle@ingrambarge.com David.Edgin@ingrambarge.com	All Situations
Inland Marine Service	Dave Hammond	859-689-7707 w	dhammond@inlandmarineservice.com	All Situations
Kirby Inland Marine	Shannon Hughes Jimbo Gibbens	225-201-3007w	Shannon.Hughes@kirbycorp.com Jimbo.Gibbens@kirbycorp.com	All Situations
Magnolia Marine	Michael Carpenter	800-696-5921(24 hrs) 601-802-8613 w	michael.carpenter@ergon.com	All Situations
Marathon Petroleum Corporation	Office number Mike Burdick James Mathis Adam Rhoden Greg Erwin	606-739-2485 w 606-739-2443 w	mcburdick@marathonpetroleum.com jmathis@marathonpetroleum.com awrhoden@marathonpetroleum.com gserwin@marathonpetroleum.com	All Situations
McGinnis, Inc - Excell Marine	Robert Englert Ron Lauder		renglert@nmrky.com rlauder@mcginnisinc.com	All Situations
Ohio River (ICE) Chairman	Steve Southern	270-441-1634w	steve.southern@ingrambarge.com	All Situations
Pine Bluff Materials Co.	Gene Whelan	615-514-1458 w	Gene.whelan@pbmat.com	All Situations
Tennessee Valley Towing	Harley Hall Gordon Southern	270-554-0154 w	hhall@tennesseevalleytowing.com gsouthern@tennesseevalleytowing.com	All Situations
Western Rivers Boat Management	Ronnie Griffin	270-444-4772 w	rgriffin@westernriversboat.com	All situations

3.A.5. Ohio Valley Internet Information Communications Plan

INTERNET SITE PURPOSE	ADDRESS
Incident Command System (ICS) Courses – Response Training	http://training.fema.gov/EMIWEB/IS/crslist.asp
Kentucky / Barkley Lock & Dam Information	http://explorekentuckylake.com/weather.htm
Lock & Dam Vessel Queues	http://corpslocks.usace.army.mil/lpwb/f?p=121:3:0:
National Incident Management System (NIMS) Courses – Response Training	http://training.fema.gov/IS/NIMS.asp
National Response Center (NRC) – Report Pollution / Terrorist Activity	http://www.nrc.uscg.mil/ContactUs.aspx
National Weather Service (NWS) – River Forecasts	http://www.srh.noaa.gov/lmrfc/?n=lmrfc-mississippiandohioriverforecast
River Industry Bulletin Board (R.I.B.B.)	http://www.ribb.com/index.php
Tennessee Valley Authority (TVA) – TNR / CMR	http://www.tva.gov/river/lakeinfo/index.htm
Tennessee Valley Authority (TVA) – Barkley L&D Flows	http://lakeinfo.tva.gov/htbin/lakeinfo?site=BAH&DataType=All&submit=View+info
Tennessee Valley Authority (TVA) – Kentucky L&D Flows	http://lakeinfo.tva.gov/htbin/lakeinfo?site=KYH&DataType=All&submit=View+info
The River School – River Training & Orientation	http://www.riverschool.com/
U.S. Army Corps of Engineers – River Gauges	http://www.lrd-wc.usace.army.mil/text/navrpti.txt
U.S. Army Corps of Engineers – River Navigation Charts	http://www.agc.army.mil/Missions/Echarts/InlandChartBooks.aspx
U.S. Coast Guard Port Security Directorate (MTSA Info)	https://homeport.uscg.mil/mycg/portal/ep/channelView.do?channelId=-24885&channelPage=%2Fep%2Fchannel%2Fdefault.jsp&pageTypeId=13489
U.S. Coast Guard – Eighth District Site – New Orleans, LA	Sector New Orleans Homeport Link
U.S. Coast Guard – Sector Ohio Valley – Louisville, KY	Sector Ohio Valley Homeport Link
U.S. Coast Guard - Sector Lower Mississippi – Memphis, TN	Sector Lower Mississippi Homeport Link
U.S. Coast Guard - Sector Upper Mississippi – St. Louis MO	Sector Upper Mississippi Homeport Link

3.B. Mississippi River Communications Plan

3.B.1. Upper Mississippi River

The River Industry Action Committee (RIAC) is a committee of the Upper Mississippi River and the lower Ohio River towing companies, formed to address navigation problems during significant changes in river conditions such as extreme low water and high water events. The committee has evolved to address all issues concerning Upper Mississippi River navigation and is the major liaison between the towing industry, the Coast Guard, and the Army Corps of Engineers for river conditions on the UMR in MSU Paducah’s AOR. RIAC is coordinated by a volunteer chairman from industry.

3.B.1.a. Upper Mississippi River Towing Industry Communications Plan (RIAC)

COMPANY / ORGANIZATION	DESIGNATED CONTACT	PHONE NUMBER	E-MAIL ADDRESS	WHEN CONTACTED
AEP River Operations	Kenny Underhill William “Rocky” Young Mike Morris		klunderhill@aepriverops.com wyoung@aepriverops.com mlmorris@aepriverops.com	All Situations
American Commercial Barge Line (ACBL)	Harold Dodd _____ Tom Damotte	618-734-0841 w _____	harold.dodd@aclines.com tom.damotte@aclines.com	All Situations
ARTCO	Bruce Hussell	314-481-8828 w	b_hussell@admworld.com	All Situations
Crouse Corporation	Randy Bowling	270-444-9611	rbowling@crouse.com	All Situations
Florida Marine	Jerry Wiltz Troy Hotard David Goin		jerry.wiltz@flmarine.com troy.hotard@flmarine.com david.goin@fimdry.com	All Situations
Ingram Barge Co.	Ed Henleben _____ Frank Johnson _____ John Operle _____ David Edgin	618-286-1517 w _____ 270-441-1649 w _____ 270-441-1606 w _____ 270-441-1646 w	Ed.Henleben@ingrambarge.com Frank.johnson@ingrambarge.com John.operle@ingrambarge.com David.Edgin@ingrambarge.com	All Situations
Kirby Inland Marine	Shannon Hughes Jimbo Gibbens	225-201-3007w	Shannon.Hughes@kirbycorp.com Jimbo.Gibbens@kirbycorp.com	All Situations

COMPANY / ORGANIZATION	DESIGNATED CONTACT	PHONE NUMBER	E-MAIL ADDRESS	WHEN CONTACTED
Luhr Brothers, Inc.	Mike Dunn <u>Rodney Linker</u> Lloyd Miller (HSE)	618-281-4106 w _____ _____	mdunn@luhr.com rlinker@luhr.com lmiller@luhr.com	Low Water Dredging Operations / Surveys
Marquette Transportation	Gary Frayser	270-744-4312 w	gfrayser@marquettettrans.com	All Situations
River Industry Action Committee (RIAC) Chairman (primary POC for St. Louis USACE District AOR)	Bernie Heroff		Bernard.heroff@adm.com	All Situations
River Marine Enterprises	David Smith	270-534-5693 w	davidsmith.rme@gmail.com	All Situations
Tennessee Valley Towing	Harley Hall <u>Gordon Southern</u>	270-554-0154 w _____	hhall@tennesseevalleytowing.com gsouthern@tennesseevalleytowing.com	All Situations

3.B.1.b. Upper Mississippi River Government Agency Communications Plan

GOVERNMENT AGENCY	DESIGNATED CONTACT	PHONE NUMBER	E-MAIL ADDRESS	WHEN CONTACTED
U.S. Coast Guard Sector Ohio Valley Sector Command	Capt Michael Zamperini CDR Eric Denley CDR Molly Wike	502-779-5411 502-779-5412 502-779-5448	Michael.B.Zamperini@uscg.mil eric.d.denley@uscg.mil molly.a.wike@uscg.mil	All Situations
U.S. Coast Guard Sector Ohio Valley Buoy Tenders	BOSN James Todd Sector SOHV Comms Center	502-779-5301 1-800-253-7465	James.A.Todd@uscg.mil	Aids to Navigation Issues
U.S. Coast Guard MSU Paducah	<u>CDR Mark Sawyer</u> LT Takila Powell	270-442-1621 x 2101w 270-442-1621 x 2110 w	Mark.C.Sawyer@uscg.mil Takila.S.Powell@uscg.mil	All Situations
U.S. Army Corps of Engineers St. Louis District Office	Dredging Project Manager Lance Engle	314-865-6343	Lance.Engle@usace.army.mil	All Situations
U.S. Army Corps of Engineers St. Louis District Office	Chief Water Control Joan Stemler	314-331-8330 w	Joan.M.Stemler@usace.army.mil	All Situations
U.S. Army Corps of Engineers St. Louis District Office	Chief Hydraulic Design Section Dave Gordon	314-331-8358 w	David.Gordon@usace.army.mil	All Situations

GOVERNMENT AGENCY	DESIGNATED CONTACT	PHONE NUMBER	E-MAIL ADDRESS	WHEN CONTACTED
U.S. Army Corps of Engineers St. Louis District Office	Chief Engineering Data Mgmt (Hydrographic Surveys) Paul Clouse	314-331-8390 w	Paul.Clouse@usace.army.mil	All Situations
U.S. Army Corps of Engineers St. Louis District Office	Chief, Rivers Project Office Andy Schimpf	636-899-0044 w	Andrew.C.Schimpf@usace.army.mil	All Situations
U.S. Army Corps of Engineers St. Louis District Office	Asst. Chief Rivers Project Office Karen Watwood	636-899-0055 w	Karen.Watwood@usace.army.mil	All Situation
U.S. Army Corps of Engineers St. Louis District Office	Chief Readiness Branch (Emergency Operations) Matthew Hunn	314-331-8568 w	Matthew.J.Hunn@usace.army.mil	All Situations
U.S. Army Corps of Engineers St. Louis District Office	Chief Operations Regulatory & Readiness Division Lou DellOrco	314-331-8100 w	Lou.DellOrco@usace.army.mil	All Situations
U.S. Army Corps of Engineers St. Louis District Office	Asst. Chief, Operations Regulatory & Readiness Division Dennis Fenske	314-331-8110 w	Dennis.S.Fenske@usace.army.mil	All Situation
U.S. Army Corps of Engineers Cairo, IL	Cairo, IL GAUGE Phone Number	901-544-3634	Not Applicable	Upper Miss. Low / High Water Gauge Reading
City Planner Cape Girardeau, MO Flood Protection Project Levee Manager	Superintendent Kenny Brannon	573-334-8326 w 270-994-7394	kbrannon@paducahky.gov	Upper Miss. River High Water
U.S. Army Corps of Engineers Memphis District Birds Point Protection Project Levee Manager	Birds Point Levee Emergency Manager Patsy Fletcher	901-544-3401 901-409-9543	Patsy.L.Fletcher@mvm02.usace.army.mil	Upper Miss. / Ohio River High Water

3.B.1.c. Upper Mississippi River Internet Information Communications Plan

INTERNET SITE PURPOSE	ADDRESS
Incident Command System (ICS) Courses – Response Training	http://training.fema.gov/EMIWEB/IS/crslist.asp
Lock & Dam Vessel Queues	http://corpslocks.usace.army.mil/lpwb/f?p=121:3:0:
National Incident Management System (NIMS) Courses – Response Training	http://training.fema.gov/IS/NIMS.asp
National Response Center (NRC) – Report Pollution / Terrorist Activity	http://www.nrc.uscg.mil/ContactUs.aspx
National Weather Service (NWS) – River Forecasts	http://www.riverwatch.noaa.gov/u_mississippi.shtml
River Industry Bulletin Board (R.I.B.B.)	http://www.ribb.com/index.php
The River School – River Training & Orientation	http://www.riverschool.com/
U.S. Army Corps of Engineers - Channel Patrol:	http://www.mvs.usace.army.mil/Missions/Navigation/Surveys/ChannelPatrol.aspx
U.S. Army Corps of Engineers - Navigation Information Connection:	http://www2.mvr.usace.army.mil/nic2/default.cfm
U.S. Army Corps of Engineers – River Gauges	http://rivergages.mvr.usace.army.mil/WaterControl/new/layout.cfm
U.S. Army Corps of Engineers – River Navigation Charts	http://www.agc.army.mil/Missions/Echarts/InlandChartBooks.aspx
U.S. Army Corps of Engineers - Weekly Navigation Status Reports:	http://www.mvs.usace.army.mil/Missions/Navigation/StatusReports.aspx
U.S. Coast Guard – Eighth District Site – New Orleans, LA	Sector New Orleans Homeport Link
U.S. Coast Guard - Marine Safety Unit – Paducah, KY	MSU Paducah Via Sector Ohio Valley Homeport
U.S. Coast Guard Port Security Directorate (MTSA Info)	https://homeport.uscg.mil/mycg/portal/ep/channelView.do?channelId=-24885&channelPage=%2Fep%2Fchannel%2Fdefault.jsp&pageTypeId=13489
U.S. Coast Guard – Sector Ohio Valley – Louisville, KY	Sector Ohio Valley Homeport Link
U.S. Coast Guard – Sector Upper Miss. River - St. Louis, MS	Sector Upper Mississippi River Homeport Link

3.B.2. Lower Mississippi River

Lower Mississippi River Committee (LOMRC) is a committee of the Lower Mississippi River and the lower Ohio River towing companies, formed to address navigation problems during significant changes in river conditions such as extreme low water and high water events. The committee has evolved to address all issues concerning Lower Mississippi River navigation and is the major liaison between the towing industry, the Coast Guard, and the Army Corps of Engineers for river conditions on the LMR in MSU Paducah’s AOR. LOMRC is coordinated by a volunteer chairman from industry.

3.B.2.a. Lower Mississippi River Towing Industry Communications Plan (LOMRC)

COMPANY / ORGANIZATION	DESIGNATED CONTACT	OFFICE PHONE NUMBER	E-MAIL ADDRESS	WHEN CONTACTED
AEP River Operations	Kenny Underhill William “Rocky” Young Mike Morris		klunderhill@aepriverops.com wdyoung@aepriverops.com mlmorris@aepriverops.com	All Situations
American Commercial Barge Line (ACBL)	Harold Dodd Tom Damotte	618-734-0814 w _____	Harold.dodd@aclines.com Tom.damotte@aclines.com	All Situations
ARTCO	Bruce Hussell	314-481-8828 w	b_hussell@admworld.com	All Situations
Canal Barge Line	Paul Barnes	504-581-2424 w	pbarnes@canalbarge.com	All Situations
Ergon Marine	Danny Koestler	601- 636-6552 w	danny.koestler@ergon.com	All Situations
Florida Marine	Jerry Wiltz Troy Hotard		jerry.wiltz@flmarine.com troy.hotard@flmarine.com	All Situations
Ingram Barge Co.	Frank Johnson John Operle Tom More David Edgin	270-441-1649 w _____ 270-441-1606 w _____ 270-441-1615 w _____ 270-441-1646 w	frank.johnson@ingrambarge.com john.operle@ingrambarge.com tom.more@ingrambarge.com david.edgin@ingrambarge.com	All Situations

COMPANY / ORGANIZATION	DESIGNATED CONTACT	OFFICE PHONE NUMBER	E-MAIL ADDRESS	WHEN CONTACTED
Kirby Inland Marine	Jay McDaniel	225-201-3006 w	Jay.McDaniel@kirbycorp.com	All Situations
Lower Mississippi River Committee (LOMRC)	LOMRC Chairman Frank Johnson	270-441-1649 w	frank.johnson@ingrambarge.com	All Situations
Lower Mississippi River Committee (LOMRC)	LOMRC Co-Chair David Goin		david.goin@fmtdry.com	All Situations
Luhr Brothers, Inc.	Mike Dunn <hr/> Rodney Linker Lloyd Miller (HSE)	618-281-4106 w <hr/> <hr/>	mdunn@luhr.com rlinker@luhr.com lmiller@luhr.com	All Situations Low Water Dredging Operations / Surveys
Magnolia Marine	Michael Carpenter	800-696-5921(24 hrs) 601-802-8613 w	michael.carpenter@ergon.com	All Situations
Marquette Transportation	Gary Frayser	270-744-4312 w	gfrayser@marquettettrans.com	All Situations
Tennessee Valley Towing	Harley Hall Gordon Southern	270-554-0154 w	hhall@tennesseevalleytowing.com gsouthern@tennesseevalleytowing.com	All Situations

3.B.2.b. Lower Mississippi River Government Agency Communications Plan

GOVERNMENT AGENCY	DESIGNATED CONTACT	PHONE NUMBER	E-MAIL ADDRESS	WHEN CONTACTED
U.S. Coast Guard Sector Ohio Valley Sector Command	Capt Michael Zamperini CDR Eric Denley CDR Molly Wike	502-779-5411 w 502-779-5412 w 502-779-5448 w	Michael.B.Zamperini@uscg.mil eric.d.denley@uscg.mil molly.a.wike@uscg.mil	All Situations
U.S. Coast Guard Sector Ohio Valley Buoy Tenders	BOSN James Todd Sector SOHV Comms Center	502-779-5301 w 1-800-253-7465	james.a.todd@uscg.mil	Aids to Navigation Issues
U.S. Coast Guard MSU Paducah	CDR Mark Sawyer LT Takila Powell	270-442-1621 X 2101 w 270-442-1621 X 2110 w 270-210-4742 c	mark.c.sawyer@uscg.mil takila.s.powell@uscg.mil	All Situations
U.S. Army Corps of Engineers Cairo, IL GAUGE Reading	Cairo, IL GAUGE Phone Number	901-544-3634	Not Applicable	Lower Miss. River Low / High Water
U. S. Army Corps of Engineers Memphis District	Chief, Operations Division Don Mayer	901-544-3764 w	Donald.V.Mayer@usace.army.mil	Lower Miss. River Low / High Water

3.B.2.c. Lower Mississippi River Internet Information Communications Plan

INTERNET SITE PURPOSE	ADDRESS
Incident Command System (ICS) Courses – Response Training	http://training.fema.gov/EMIWEB/IS/crslist.asp
Lock & Dam Vessel Queues	http://corpslocks.usace.army.mil/lpwb/f?p=121:3:0:
National Incident Management System (NIMS) Courses – Response Training	http://training.fema.gov/IS/NIMS.asp
National Response Center (NRC) – Report Pollution / Terrorist Activity	http://www.nrc.uscg.mil/ContactUs.aspx
National Weather Service (NWS) – River Forecasts	http://www.srh.noaa.gov/lmrfc/?n=lmrhc-mississippiandohioriverforecast
River Industry Bulletin Board (R.I.B.B.)	http://www.ribb.com/index.php
The River School – River Training & Orientation	http://www.riverschool.com/
U.S. Army Corps of Engineers – River Gauges	http://rivergages.mvr.usace.army.mil/WaterControl/new/layout.cfm
U.S. Army Corps of Engineers – River Navigation Charts	http://www.agc.army.mil/Missions/Echarts/InlandChartBooks.aspx
U.S. Coast Guard – Eighth District Site – New Orleans, LA	Sector New Orleans Homeport Link
U.S. Coast Guard - Marine Safety Unit – Paducah, KY	MSU Paducah Via Sector Ohio Valley Homeport
U.S. Coast Guard Port Security Directorate (MTSA Info)	https://homeport.uscg.mil/mycg/portal/ep/channelView.do?channelId=-24885&channelPage=%2Fep%2Fchannel%2Fdefault.jsp&pageTypeId=13489
U.S. Coast Guard – Sector Ohio Valley – Louisville, KY	Sector Ohio Valley Homeport Link
U.S. Coast Guard – Sector Lower Mississippi River – Memphis, TN	Sector Lower Miss. River Homeport Link

3.C. Tennessee River Communications Plan

The Tennessee and Cumberland River Industry Committee (TCIC) MSD Nashville and MSU Paducah AOR serves as the primary committee for communicating among the towing companies operating on the Tennessee and Cumberland River within the Coast Guard Marine Safety Detachment Nashville and Marine Safety Unit Paducah Area of Responsibility. The TCIC Committee Chairman serves as the primary point of contact for relaying information, coordinating meetings, and setting up conference calls between all federal agencies and the towing industry. The primary purpose of the TCIC Committee is to address all issues concerning Tennessee and Cumberland River navigation and to act as the major liaison between the towing industry, the Coast Guard, the Tennessee Valley Authority and the Army Corps of Engineers throughout the Tennessee and Cumberland River Valley.

3.C.1. Tennessee River Towing Industry Communications Plan

COMPANY / ORGANIZATION	DESIGNATED CONTACT	PHONE NUMBER	E-MAIL ADDRESS	WHEN CONTACTED
American Commercial Barge Line (ACBL)	Harold Dodd Tom Damotte	618-734-0841 w 618-306-5985 c 618-306-2792 c	harold.dodd@aclines.com tom.damotte@aclines.com	All Situations
Canal Barge Lines	Paul Barnes	504-527-2424 w 504-908-0828 c	pbarnes@canalbarge.com	All Situations
Crouse Corporation	Randy Bowling	270-444-9611 w 270-217-1148 c	rbowling@crouse.com	All Situations
Hunter Marine	Glenn Hendon Reggie Tubbs	615-417-5638 c 615-352-6935 w 270-444-7011 w 270-331-0516 c	ghendon@huntermarine.net operations@huntermarine.net rtubbs@huntermarine.net	All Situations
Ingram Barge Co.	Steve Southern Billy Poindexter Jr. David Edgin John Operle Frank Johnson	270-441-1634 w 270-210-7726 c 270-441-1638 w 270-853-2195 c 270-441-1646 w 615-969-0751 c 270-441-1606 w 270-210-6183 c 270-441-1649 w 270-210-5912 c	Steve.southern@ingrambarge.com Billy.PoindexterJr@ingrambarge.com David.edgin@ingrambarge.com John.operle@ingrambarge.com Frank.johnson@ingrambarge.com	All Situations
Magnolia Marine	Michael Carpenter	800-696-5921 (24 hrs) 601-802-8613 w 601-618-6071 c	michael.carpenter@ergon.com	All Situations
Serodino	Travis Schrimsher Peter Serodino IV	423-942-7000 w 404-852-5724 c 423-443-8251 c	travis@serodinoinc.com peteriv@serodinoinc.com	All Situations
Tennessee and Cumberland River Industry Committee (TCIC)	TCIC Chairman Harley Hall	270-554-0154 w 270-210-2338 c	hhall@tennesseevalleytowing.com	All Situations
Tennessee Valley Towing (TVT)	Harley Hall Gordon Southern	270-554-0154 w 270-210-2338 c 270-898-7392 w 270-210-9920 c	hhall@tennesseevalleytowing.com gsouthern@tennesseevalleytowing.com	All Situations

3.C.2. Tennessee River Government Agencies Communications Plan

GOVERNMENT AGENCY	DESIGNATED CONTACT	PHONE NUMBER	E-MAIL ADDRESS	WHEN CONTACTED
U.S. Coast Guard Sector Ohio Valley Sector Command	Capt Michael Zamperini CDR Eric Denley CDR Molly Wike	502-779-5411 w 502-779-5412 w 502-779-5448 w	Michael.B.Zamperini@uscg.mil eric.d.denley@uscg.mil molly.a.wike@uscg.mil	All Situations
U.S. Coast Guard Sector Ohio Valley Buoy Tenders	BOSN James Todd Sector SOHV Comms Center	502-779-5301 w 1-800-253-7465	james.a.todd@uscg.mil	Aids to Navigation Issues
U.S. Coast Guard MSU Paducah	<u>CDR Mark Sawyer</u> LT Takila Powell	<u>270-442-1621 x 2101 w</u> <u>270-442-1621 x 2110 w</u>	mark.c.sawyer@uscg.mil takila.s.powell@uscg.mil	All Situations
U.S. Coast Guard MSD Nashville	LCDR Jarrod DeWitz	615-736-5421	jarrod.m.dewitz@uscg.mil	All Situations
U.S. Army Corps of Engineers Louisville District Office	District L&D Manager Waylon Humphrey	502-315-6695 w	waylon.d.humphrey@usace.army.mil	Lock & Dam Operations
U.S. Army Corps of Engineers Nashville District	Chief, Operations Division Owen Traughber	615-736-5608	owen.traughber@usace.army.mil	Lock & Dam Operations
U.S. Army Corps of Engineers Nashville District Kentucky & Barkley L&D	Lockmaster John “Caleb” Skinner	270-362-4226 w	john.c.skinner@usace.army.mil	Tennessee, Cumberland, Ohio River Low / High Water
Tennessee Valley Authority (Kentucky & Barkley L&D)	<u>River Forecast Center-Lead Engr</u> Nikki Berger	<u>865-632-7063 (24 hrs)</u> 865-632-8980 w	rsolead@tva.gov ncberger@tva.gov	Tennessee, Cumberland, Ohio River Low / High Water
Tennessee Valley Authority Tennessee River- Water Control Issues	<u>TVA- Nikki Berger</u>	<u>865-632-8980 w</u> _____	ncberger@tva.gov	Tennessee River: Low/High Water

3.C.3. Tennessee River Internet Information Communications Plan

INTERNET SITE PURPOSE	ADDRESS
Incident Command System (ICS) Courses – Response Training	http://training.fema.gov/EMIWEB/IS/crslist.asp
Kentucky / Barkley Lock & Dam Information	http://explorekentuckylake.com/weather.htm
Lock & Dam Vessel Queues	http://corpslocks.usace.army.mil/lpwb/f?p=121:3:0
National Incident Management System (NIMS) Courses – Response Training	http://training.fema.gov/IS/NIMS.asp
National Response Center (NRC) – Report Pollution / Terrorist Activity	http://www.nrc.uscg.mil/ContactUs.aspx
National Weather Service (NWS) – River Forecasts	http://water.weather.gov/ahps2/forecasts.php?wfo=ohx
River Industry Bulletin Board (R.I.B.B.)	http://www.ribb.com/index.php
The River School – River Training & Orientation	http://www.riverschool.com/
Tennessee Valley Authority (TVA) – Barkley L&D Flows	http://lakeinfo.tva.gov/htbin/lakeinfo?site=BAH&DataType=All&submit=View+info
Tennessee Valley Authority (TVA) – Kentucky L&D Flows	http://lakeinfo.tva.gov/htbin/lakeinfo?site=KYH&DataType=All&submit=View+info
Tennessee Valley Authority (TVA) – TNR / CMR	http://www.tva.gov/river/lakeinfo/index.htm
U.S. Army Corps of Engineers – River GAUGEs	http://www.lrd-wc.usace.army.mil/text/navrpti.txt
U.S. Army Corps of Engineers – River Navigation Charts	http://www.agc.army.mil/Missions/Echarts/InlandChartBooks.aspx
U.S. Coast Guard – Eighth District Site – New Orleans, LA	Sector New Orleans Homeport Link
U.S. Coast Guard - Marine Safety Unit – Paducah, KY	MSU Paducah Via Sector Ohio Valley Homeport
U.S. Coast Guard Port Security Directorate (MTSA Info)	https://homeport.uscg.mil/mycg/portal/ep/channelView.do?channelId=-24885&channelPage=%2Fep%2Fchannel%2Fdefault.jsp&pageTypeId=13489
U.S. Coast Guard – Sector Ohio Valley – Louisville, KY	Sector Ohio Valley Homeport Link

3.D. Cumberland River Communications Plan

The Tennessee and Cumberland River Industry Committee (TCIC) MSD Nashville and MSU Paducah AOR serves as the primary committee for communicating among the towing companies operating on the Tennessee and Cumberland River within the Coast Guard Marine Safety Detachment Nashville and Marine Safety Unit Paducah Area of Responsibility. The TCIC Committee Chairman serves as the primary point of contact for relaying information, coordinating meetings, and setting up conference calls between all federal agencies and the towing industry. The primary purpose of the TCIC Committee is to address all issues concerning Tennessee and Cumberland River navigation and to act as the major liaison between the towing industry, the Coast Guard, the Tennessee Valley Authority and the Army Corps of Engineers throughout the Tennessee and Cumberland River Valley.

3.D.1. Cumberland River Towing Industry Communications Plan

COMPANY / ORGANIZATION	DESIGNATED CONTACT	PHONE NUMBER	E-MAIL ADDRESS	WHEN CONTACTED
American Commercial Barge Line (ACBL)	Harold Dodd	618-734-0841 w	harold.dodd@aclines.com	All Situations
	Tom Damotte	_____	tom.damotte@aclines.com	
Canal Barge Lines	Paul Barnes	504-581-2424 w	pbarnes@canalbarge.com	All Situations
Crouse Corporation	Randy Bowling	270-444-9611 w	rbowling@crouse.com	All Situations
Heartland Barge	Lisa Boone	615-378-6001 w	lisa.boone@heartlandbarge.com	All situations
	Tim Delaney	618-281-4515 ext 204 w	tim.delaney@heartlandbarge.com	
Hunter Marine	Glenn Hendon	615-352-6935w	hmt@bellsouth.net	All Situations
	Reggie Tubbs	270-444-7011 w	rtubbs@huntermarine.com	
Ingram Barge Co.	Steve Southern	270-441-1634 w	Steve.southern@ingrambarge.com	All Situations
	Billy Poindexter Jr.	270-441-1638 w	Billy.PoindexterJr@ingrambarge.com	
	David Edgin	270-441-1646 w	David.edgin@ingrambarge.com	
	John Operle	270-441-1606 w	John.operle@ingrambarge.com	
	Frank Johnson	270-441-1649 w	Frank.johnson@ingrambarge.com	
	24 hrs Dispatch office	270-441-1600 (24 hrs)		

COMPANY / ORGANIZATION	DESIGNATED CONTACT	PHONE NUMBER	E-MAIL ADDRESS	WHEN CONTACTED
Magnolia Marine	Michael Carpenter	800-696-5921(24 hrs) 601-802-8613 w	Michael.Carpenter@ergon.com	All Situations
Serodino	Travis Schrimsher _____ Peter Serodino IV	423-942-7000 w _____	travis@serodinoinc.com peteriv@serodinoinc.com	All Situations
Tennessee and Cumberland River Industry Committee (TCIC)	TCIC Chairman Harley Hall	270-554-0154 w	hhall@tennesseevalleytowing.com	All Situations
Tennessee Valley Towing (TVT)	Harley Hall _____ Gordon Southern	270-554-0154 w _____ 270-898-7392 w	hhall@tennesseevalleytowing.com gsouthern@tennesseevalleytowing.com	All Situations

3.D.2. Cumberland River Government Agencies Communications Plan

GOVERNMENT AGENCY	DESIGNATED CONTACT	PHONE NUMBER	E-MAIL ADDRESS	WHEN CONTACTED
U.S. Coast Guard Sector Ohio Valley Sector Command	Capt Michael Zamperini CDR Eric Denley CDR Molly Wike	502-779-5411 w 502-779-5412 w 502-779-5448 w	Michael.B.Zamperini@uscg.mil eric.d.denley@uscg.mil molly.a.wike@uscg.mil	All Situations
U.S. Coast Guard Sector Ohio Valley Buoy Tenders	BOSN James Todd Sector SOHV Comms Center	502-779-5301 1-800-253-7465	james.a.todd@uscg.mil	Aids to Navigation Issues
U.S. Coast Guard MSU Paducah	CDR Mark Sawyer LT Takila Powell	270-442-1621 X 2101 w 270-442-1621 X 2110 w	Mark.C.Sawyer@uscg.mil Takila.S.Powell@uscg.mil	All Situations
U.S. Coast Guard MSD Nashville	LCDR Jarrod DeWitz LT Kevin Ralson	615-736-5421	jarrod.m.dewitz@uscg.mil kevin.l.ralson@uscg.mil	All Situations
U.S. Army Corps of Engineers Louisville District Office	District L&D Manager Waylon Humphrey	502-315-6695 w	waylon.d.humphrey@usace.army.mil	Lock & Dam Operations
U.S. Army Corps of Engineers Nashville District	Navigation Branch Owen Traughber	615-736-5608	Owen.Traughber@usace.army.mil	All Situations
U.S. Army Corps of Engineers Nashville District Kentucky / Barkley Lock and Dam	Lockmaster John “Caleb” Skinner	270-362-4226 w	john.c.skinner@usace.army.mil	Tennessee, Cumberland, Ohio River Low / High Water
Tennessee Valley Authority (Kentucky/Barkley L&D)	<u>River Forecast Center-Lead Engr</u> Nikki Berger	<u>865-632-7063 (24 hrs)</u> 865-632-8980 w	rsolead@tva.gov ncberger@tva.gov	Tennessee, Cumberland, Ohio River Low / High Water
U.S. Army Corps of Engineers Nashville District Cumberland River Water Control Issues	<u>Bob Sneed</u>	<u>615-736-5675</u>	Robert.b.sneed@usace.army.mil	Cumberland River: Low/High Water

3.D.3. Cumberland River Internet Information Communications Plan

INTERNET SITE PURPOSE	ADDRESS
Incident Command System (ICS) Courses – Response Training	http://training.fema.gov/EMIWEB/IS/crslist.asp
Kentucky / Barkley Lock & Dam Information	http://explorekentuckylake.com/weather.htm
Lock & Dam Vessel Queues	http://corpslocks.usace.army.mil/lpwb/f?p=121:3:0:
National Incident Management System (NIMS) Courses – Response Training	http://training.fema.gov/IS/NIMS.asp
National Response Center (NRC) – Report Pollution / Terrorist Activity	http://www.nrc.uscg.mil/ContactUs.aspx
National Weather Service (NWS) – River Forecasts	http://water.weather.gov/ahps2/index.php?wfo=ohx
River Industry Bulletin Board (R.I.B.B.)	http://www.ribb.com/index.php
The River School – River Training & Orientation	http://www.riverschool.com/
Tennessee Valley Authority (TVA) – Barkley L&D Flows	http://lakeinfo.tva.gov/htbin/lakeinfo?site=BAH&DataType=All&submit=View+info
Tennessee Valley Authority (TVA) – Kentucky L&D Flows	http://lakeinfo.tva.gov/htbin/lakeinfo?site=KYH&DataType=All&submit=View+info
Tennessee Valley Authority (TVA) – TNR / CMR	http://www.tva.gov/river/lakeinfo/index.htm
U.S. Army Corps of Engineers – River Gauges	http://www.lrd-wc.usace.army.mil/OhioRiver/text/lourpti.rpt
U.S. Army Corps of Engineers – River Navigation Charts	http://www.agc.army.mil/Missions/Echarts/InlandChartBooks.aspx
U.S. Coast Guard – Eighth District Site – New Orleans, LA	Sector New Orleans Homeport Link
U.S. Coast Guard - Marine Safety Unit – Paducah, KY	MSU Paducah Via Sector Ohio Valley Homeport
U.S. Coast Guard Port Security Directorate (MTSA Info)	https://homeport.uscg.mil/mycg/portal/ep/channelView.do?channelId=-24885&channelPage=%2Fep%2Fchannel%2Fdefault.jsp&pageTypeId=13489
U.S. Coast Guard – Sector Ohio Valley – Louisville, KY	Sector Ohio Valley Homeport Link

4. Action Plan

Actions taken during waterways crisis span a wide range of controls and responses from all involved parties including industry and federal government agencies. In general, actions taken by industry will be intended to reduce marine casualties during low & high water situations. Some actions taken by industry during extreme low water conditions include reducing loads or lightering barges, which reduce vessel drafts. During high water conditions, industry may reduce tow sizes to allow more positive control over the tow to more effectively utilize towboat horsepower. The federal government, including the U.S. Coast Guard, U.S. Army Corps of Engineers, and the Tennessee Valley Authority, is also required to take specific and timely actions to aid in preventing marine casualties while facilitating commerce. Some of these actions include the USCG's issuance of Broadcast Notice to Mariners (BNM), establishment of Safety Zones, dredging operations by the USACE, and adjustment of flow rates from locks and dams by the Tennessee Valley Authority (TVA). The enclosed Safety Advisory and Safety Zone templates are recommended for use, but can be modified or combined to meet the needs of the situation.

4.A. Ohio River Action Plan

4.A.1. Emsworth Lock and Dam High Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p>EMSWORTH LOCK & DAM</p> <p>OHIO RIVER MILE MARKER: 6.2</p> <p>FLOOD STAGE READING: 30' LG</p> <p>OTHER USEFUL DATA: NORMAL POOL 16' ON UG & 12' ON LG MAX. DAM OPENING 105' CEASE LOCKING 30' LG</p> <p>THE POTENTIAL FOR VESSEL ALLISIONS WITH THE LOCK AND DAM TENDS TO INCREASE AS WATER RISES AND CURRENT INCREASES.</p> <p>CAUTIONARY NOTE 1: SEVERE OUTDRAFT DURING HIGH WATER.</p> <p>USACE GAUGE READINGS REPORT</p>	<65' DAM OPENING	Rising	Normal Operations/ Flow Conditions	n/a	Locking operations normal.
	65'+DAM OPENING	Rising & projected to continue rising rapidly	High Water/ High Flow Conditions	Watch	Consider for high water conference calls. MSU Pittsburgh and/or WAP will initiate a phone conference between CG, USACE and WAP. Topics to discuss: water conditions, concerns, future actions, weather forecasts and river stages. MSU Pittsburgh will submit a Safety Advisory request to the Sector Command Center (SCC). The SCC will initiate a Safety Advisory (Enc. 1).
	85'+ DAM OPENING	Rising & projected to continue rising rapidly	Extreme High Water/Extreme High Flow Conditions	Action	Continue monitoring river conditions. MSU Pittsburgh will submit a Safety Advisory request to the SCC. The SCC will initiate a Safety Advisory (Enc. 2) and cancel Safety Advisory (Enc. 1). Note: Double lockages restricted to a maximum of three barge lengths at 90' of dam opening and a maximum of two barge lengths between 90' – 94'. * No restrictions with helper boat.
	95'+ DAM OPENING	Rising & projected to continue rising rapidly	Extreme High Water/Extreme High Flow Conditions	Action	Continue monitoring river conditions, continue broadcasting Safety Advisories (Enc. 2). Note: Small lock chamber taken out of operation when dam openings exceed 95'. Double lockages restricted to a maximum of one barge length at and above 95' of dam opening. * No restrictions with helper boat.
	95' - DAM OPENING	Falling	High Water/ High Flow Conditions	Watch	Continue monitoring river conditions, continue broadcasting Safety Advisories (Enc. 2).
	85' - DAM OPENING	Falling	High Water/ High Flow Conditions	Recovery	Continue monitoring river conditions and consider canceling Safety Advisory (Enc. 2) when below 85' and initiating Safety Advisory (Enc. 1). Consider canceling Safety Advisory (Enc. 1) when below 65'.

OHIO RIVER - EMSWORTH L&D

HIGH WATER Enclosure 1 (example) Broadcast Notice To Mariners

THE U.S. COAST GUARD CAPTAIN OF THE PORT HAS ISSUED THIS SAFETY ADVISORY DUE TO HIGH WATER / HIGH FLOW CONDITIONS AT EMSWORTH DAM MILE MARKER 6.2 OHIO RIVER. THE GATE OPENING AT EMSWORTH DAM READS GREATER THAN 65 FEET. FOR VESSELS TRANSITING THE OHIO RIVER, WHEN TRANSITING DOWNRIVER WITH THE INTENTION OF USING THE FRONT CHANNEL PAST BRUNOT ISLAND, MILE MARKER 1.5, KEEP TOWARDS THE RIGHT DESCENDING BANK WHILE ENTERING THE FRONT CHANNEL TO AVOID SEVERE SET TOWARDS THE ISLAND. WHEN TRANSITING UPRIVER WITH THE INTENTION OF USING THE BACK CHANNEL PAST BRUNOT ISLAND, MILE MARKER 3, EXERCISE CAUTION WHILE ENTERING THE BACK CHANNEL TO PREVENT BEING SET AGAINST THE LEFT DESCENDING BANK. EXERCISE CAUTION AND ENSURE VERTICAL CLEARANCE IS SUFFICIENT WHILE TRANSITING UNDER BRIDGES LOCATED BETWEEN MILE MARKERS 0 AND 3 ALLEGHENY RIVER AND BETWEEN MILE MARKERS 0 AND 9 MONONGAHELA RIVER.

HIGH WATER Enclosure 2 (example) Broadcast Notice To Mariners

THE U.S. COAST GUARD CAPTAIN OF THE PORT HAS ISSUED THIS SAFETY ADVISORY DUE TO HIGH WATER / HIGH FLOW CONDITIONS AT EMSWORTH DAM MILE MARKER 6.2 OHIO RIVER. THE GATE OPENING AT EMSWORTH DAM READS GREATER THAN 85 FEET. FOR VESSELS TRANSITING THE OHIO RIVER, WHEN TRANSITING DOWNRIVER WITH THE INTENTION OF USING THE FRONT CHANNEL PAST BRUNOT ISLAND, MILE MARKER 1.5, KEEP TOWARDS THE RIGHT DESCENDING BANK WHILE ENTERING THE FRONT CHANNEL TO AVOID SEVERE SET TOWARDS THE ISLAND. WHEN TRANSITING UPRIVER WITH THE INTENTION OF USING THE BACK CHANNEL PAST BRUNOT ISLAND, MILE MARKER 3, EXERCISE CAUTION WHILE ENTERING THE BACK CHANNEL TO PREVENT BEING SET AGAINST THE LEFT DESCENDING BANK. ENSURE VERTICAL CLEARANCE IS SUFFICIENT WHILE TRANSITING UNDER BRIDGES LOCATED BETWEEN MILE MARKERS 0 AND 3 ALLEGHENY RIVER AND BETWEEN MILE MARKERS 0 AND 9 MONONGAHELA RIVER. EXERCISE CAUTION WHILE TRANSITING IN THE AREA OF THE EMSWORTH AND DASHIELDS LOCK AND DAMS, MILE MARKERS 13.3 TO 15, DUE TO THE STRONG CURRENTS IN THE AREA. SOUTHBOUND TOW VESSELS ARE RECOMMENDED TO HAVE A HELPER BOAT PRESENT TO ASSIST WHEN EITHER, (1) PUSHING A TOW CONSISTING OF TWO BARGE LENGTHS OR GREATER WHEN AT LEAST ONE BARGE IS A TANK BARGE OR, (2) CONDUCTING A DOUBLE LOCKAGE THROUGH EMSWORTH, DASHIELDS, OR MONTGOMERY LOCKS.

4.A. Ohio River Action Plan

4.A.2. Dashields Lock and Dam High Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p>DASHIELDS LOCK & DAM</p> <p>OHIO RIVER MILE MARKER: 13.3</p> <p>FLOOD STAGE READING: 23' UG</p> <p>OTHER USEFUL DATA: NORMAL POOL 12' ON UG & 12' ON LG CEASE LOCKING 23' UG</p> <p>TABLE USES UPPER AND LOWER GAUGE READINGS TO MONITOR RIVER CONDITIONS. THE POTENTIAL FOR VESSEL ALLISIONS WITH THE LOCK AND DAM TENDS TO INCREASE AS WATER RISES AND CURRENT INCREASES.</p> <p>CAUTIONARY NOTE 1: SEVERE OUTDRAFT DURING HIGH WATER. OUTDRAFT INCREASES AS RIVER RISES.</p> <p>CAUTIONARY NOTE 2: MARINERS ARE ALSO ADVISED TO CLOSELY MONITOR CONDITIONS AND DAM OPENINGS AT EMSWORTH LOCK AND DAM, WHILE TRANSITTING IN THE VICINITY OF DASHIELDS. UNEXPECTED INCREASES IN FLOW, CURRENT AND SEVERE OUTDRAFTS DURING HIGH WATER CONDITIONS, MAY BE ENCOUNTERED.</p> <p>USACE GAUGE READINGS REPORT</p>	<20' UG	Rising	Normal Operations/ Flow Conditions	n/a	Locking operations normal.
	20'+ UG	Rising & projected to continue rising rapidly	High Water/ High Flow Conditions	Watch	Consider for high water conference calls. MSU Pittsburgh and/or WAP will initiate a phone conference between CG, USACE and WAP. Topics to discuss: water conditions, concerns, future actions, weather forecasts and river stages. MSU Pittsburgh will submit a Safety Advisory request to the Sector Command Center (SCC). The SCC will initiate a Safety Advisory (Enc. 1).
	24'+ UG	Rising & projected to continue rising rapidly	Extreme High Water/ Extreme High Flow Conditions	Action	Continue monitoring river conditions, continue broadcasting Safety Advisory (Enc. 1).
	24' - UG	Falling	High Water/ High Flow Conditions	Watch	Continue monitoring river conditions and consider canceling Safety Advisory (Enc. 1).
	20' - UG	Falling	Normal Operations/ Flow Conditions	Recovery	Locking operations normal.

OHIO RIVER - DASHIELDS L&D

HIGH WATER Enclosure 1 (example) Broadcast Notice To Mariners

THE U.S. COAST GUARD CAPTAIN OF THE PORT HAS ISSUED THIS SAFETY ADVISORY DUE TO HIGH WATER / HIGH FLOW CONDITIONS AT DASHIELDS DAM MILE MARKER 13.3 OHIO RIVER. THE UPPER GAUGE AT DASHIELDS DAM READS GREATER THAN 20 FEET. FLEETING FACILITIES ARE ADVISED TO (1) REVIEW AND ACT IN ACCORDANCE WITH THEIR WATERFRONT FLEET OPERATIONS GUIDE AND ANY COMPANY CONTINGENCY PLANS, (2) TO ASSIGN A PERSON TO BE IN CONTINUOUS SURVEILLANCE AND TO OBSERVE THE BARGES IN THE FLEETING FACILITY, (3) DOUBLE-UP LINES ON THE HEAD OF THE FLEET AND PROVIDE AN ADEQUATE NUMBER OF SPRING AND BREAST LINES BETWEEN THE DOCK AND THE BARGES IN THE FLEET, AND (4) REVIEW THEIR NEED TO SECURE TOWBOAT ASSISTANCE.

4.A. Ohio River Action Plan

4.A.3. Montgomery Lock and Dam High Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p>MONTGOMERY LOCK & DAM</p> <p>OHIO RIVER MILE MARKER: 31.7</p> <p>FLOOD STAGE READING: 33' LG</p> <p>OTHER USEFUL DATA: NORMAL POOL 12' ON UG & 12' ON LG CEASE LOCKING 20' UG MAX. DAM OPENING 100'</p> <p>THE POTENTIAL FOR VESSEL ALLISIONS WITH THE LOCK AND DAM TENDS TO INCREASE AS WATER RISES AND CURRENT INCREASES.</p> <p>CAUTIONARY NOTE 1: SEVERE OUTDRAFT DURING HIGH WATER.</p> <p>USACE GAUGE READINGS REPORT</p>	<40' DAM OPENING	Rising	Normal Operations/ Flow Conditions	n/a	Locking operations normal.
	40'+ DAM OPENING	Rising & projected to continue rising rapidly	High Water/ High Flow Conditions	Watch	Consider for high water conference calls. MSU Pittsburgh and/or WAP will initiate a phone conference between CG, USACE and WAP. Topics to discuss: water conditions, concerns, future actions, weather forecasts and river stages. MSU Pittsburgh will submit a Safety Advisory request to the Sector Command Center (SCC). The SCC will initiate a Safety Advisory (Enc. 1).
	65'+ DAM OPENING	Rising & projected to continue rising rapidly	Extreme High Water/ Extreme High Flow Conditions	Action	Continue monitoring river conditions. MSU Pittsburgh will submit a Safety Advisory request to the SCC. The SCC will initiate a Safety Advisory (Enc. 2) and cancel Safety Advisory (Enc. 1). When dam openings exceed 65', small lock chamber taken out of operations and no up bound double lockages without the assistance of a helper boat.
	65'- DAM OPENING	Falling	High Water/ High Flow Conditions	Watch	Continue monitoring river conditions, cancel Safety Advisory (Enc. 2) and initiate Safety Advisory (Enc. 1).
	40'- DAM OPENING	Falling	Normal Operations/ Flow Conditions	Recovery	Continue monitoring river conditions and consider canceling Safety Advisory (Enc. 1).

OHIO RIVER - MONTGOMERY L&D

HIGH WATER Enclosure 1 (example)

Broadcast Notice To Mariners

THE U.S. COAST GUARD CAPTAIN OF THE PORT HAS ISSUED THIS SAFETY ADVISORY DUE TO HIGH WATER / HIGH FLOW CONDITIONS AT MONTGOMERY DAM, MILE MARKER 31.7, OHIO RIVER. THE GATE OPENING AT MONTGOMERY DAM IS GREATER THAN 40 FEET. EXERCISE CAUTION WHILE TRANSITING UNDER THE NEWELL HIGHWAY BRIDGE MILE MARKER 44.5 DUE TO THE STRONG SET AND CURRENTS IN THAT AREA. UPBOUND TOW VESSELS ARE ADVISED THAT WHEN PERFORMING A SET OVER OR KNOCK OUT THROUGH THE MONTGOMERY LOCKS, TO SECURE THE HEAD OF THEIR TOWS TO THE LOCK WALL USING THE CLOSEST PIN POSSIBLE BEFORE THE SET OVER OR KNOCK OUT IS INITIATED, AND ENSURE THAT TOWS ARE FULLY SECURED PRIOR TO LEAVING THE VICINITY OF THE LOCKS. DOWNBOUND TOW VESSELS PERFORMING A DOUBLE LOCKAGE ARE STRONGLY ADVISED TO HAVE A HELPER BOAT ASSIST THE TOWS IN KEEPING ALONGSIDE THE GUIDE WALL WHILE ENTERING THE LOCKS.

Broadcast Notice To Mariners

Safety Marine Information Broadcast (Local Safety)

THE U.S. COAST GUARD CAPTAIN OF THE PORT HAS ISSUED THIS SAFETY ADVISORY DUE TO HIGH WATER / HIGH FLOW CONDITIONS AT MONTGOMERY DAM, MILE MARKER 31.7, OHIO RIVER. THE GATE OPENING AT MONTGOMERY DAM IS GREATER THAN 65 FEET. EXERCISE CAUTION WHILE TRANSITING UNDER THE NEWELL HIGHWAY BRIDGE, MILE MARKER 44.5, AND THE P.L.&E. RAILROAD BRIDGE, MILE MARKER 25.8, DUE TO THE STRONG SET AND CURRENTS IN THOSE AREAS. TOW VESSELS ARE RECOMMENDED TO HAVE A HELPER BOAT WHEN TRANSITING THROUGH THE MONTGOMERY LOCKS, IF THEY ARE PUSHING TWO BARGE LENGTHS OR GREATER. UPBOUND TOW VESSELS ARE ADVISED THAT WHEN PERFORMING A SET OVER OR KNOCK OUT THROUGH THE MONTGOMERY LOCKS, TO SECURE THE HEAD OF THEIR TOWS TO THE LOCK WALL USING THE CLOSEST PIN POSSIBLE BEFORE THE SET OVER OR KNOCK OUT IS INITIATED, AND ENSURE THAT TOWS ARE FULLY SECURED PRIOR TO LEAVING THE VICINITY OF THE LOCKS. DOWNBOUND TOW VESSELS PERFORMING A DOUBLE LOCKAGE ARE STRONGLY ADVISED TO HAVE A HELPER BOAT ASSIST THE TOWS IN KEEPING ALONGSIDE THE GUIDE WALL WHILE ENTERING THE LOCKS.

4.A. Ohio River Action Plan

4.A.4. New Cumberland Lock and Dam High Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p>NEW CUMBERLAND LOCK & DAM</p> <p>OHIO RIVER MM: 54.4</p> <p>FLOOD STAGE READING: 37' Lower Gauge</p> <p>OTHER USEFUL DATA: NORMAL POOL 12' ON UPPER GAUGE & 12' ON LOWER GAUGE</p> <p>CEASE LOCKING 37' LOWER GAUGE</p> <p>MAX. DAM OPENING 143'</p> <p>THE POTENTIAL FOR VESSEL ALLISIONS WITH THE LOCK AND DAM TENDS TO INCREASE AS WATER RISES AND CURRENT INCREASES.</p> <p>CAUTIONARY NOTE 1: OUTDRAFTS DURING HIGH WATER.</p> <p><u>USACE GAUGE READINGS REPORT</u></p>	<50' DAM OPENING	Rising	Normal Operations/ Flow Conditions	n/a	Locking operations normal.
	50'+ DAM OPENING	Rising & projected to continue rising rapidly	High Water/ High Flow Conditions	Watch	Consider for high water conference calls. MSU Pittsburgh and/or WAP will initiate a phone conference between CG, USACE and WAP. Topics to discuss: water conditions, concerns, future actions, weather forecasts and river stages. MSU Pittsburgh will submit a Safety Advisory request to the Sector Command Center (SCC). The SCC will initiate a Safety Advisory (Enc. 1).
	50'- DAM OPENING	Falling	Normal Operations/ Flow Conditions	Recovery	Continue monitoring river conditions, consider canceling Safety Advisory (Enc. 1).

OHIO RIVER - NEW CUMBERLAND L&D

HIGH WATER Enclosure 1 (example) Broadcast Notice To Mariners

THE U.S. COAST GUARD CAPTAIN OF THE PORT HAS ISSUED THIS SAFETY ADVISORY DUE TO HIGH WATER / HIGH FLOW CONDITIONS AT NEW CUMBERLAND DAM, MILE MARKER 54.4, OHIO RIVER. THE GATE OPENING AT NEW CUMBERLAND DAM IS GREATER THAN 50 FEET. EXERCISE CAUTION WHILE TRANSITING PAST BROWNS ISLAND, MILE MARKERS 60.5 TO 64, DUE TO THE NARROW CHANNEL, ABUNDANCE OF FLEETING AREAS, AND FAST CURRENTS IN THAT AREA. EXERCISE CAUTION WHILE TRANSITING PAST CABLES EDDY, MILE MARKERS 64.5 TO 65.5, DUE TO THE NARROW CHANNEL AND SHARP BEND IN THAT AREA.

4.A. Ohio River Action Plan

4.A.5. Pike Island Lock and Dam High Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p>PIKE ISLAND LOCK & DAM</p> <p>OHIO RIVER MM: 84.2</p> <p>FLOOD STAGE READING: 37' LG</p> <p>OTHER USEFUL DATA: NORMAL POOL 12' ON UG & 12' ON LG CEASE LOCKING 37' LG MAX. DAM OPENING 194'</p> <p>THE POTENTIAL FOR VESSEL ALLISIONS WITH THE LOCK AND DAM TENDS TO INCREASE AS WATER RISES AND CURRENT INCREASES.</p> <p>CAUTIONARY NOTE 1: OUTDRAFTS DURING EXTREME HIGH WATER.</p> <p>CAUTIONARY NOTE 2: DURING LOW WATER, UPBOUND TOWS ARE REMINDED TO BE CAUTIOUS OF OUTDRAFTS TOWARDS THE RIVER WALL.</p> <p>USACE GAUGE READINGS REPORT</p>	<50' DAM OPENING	Rising	Normal Operations/ Flow Conditions	n/a	Locking operations normal.
	50'+ DAM OPENING	Rising & projected to continue rising rapidly	High Water/ High Flow Conditions	Watch	Consider for high water conference calls. MSU Pittsburgh and/or WAP will initiate a phone conference between CG, USACE and WAP. Topics to discuss: water conditions, concerns, future actions, weather forecasts and river stages. MSU Pittsburgh will submit a Safety Advisory request to the Sector Command Center (SCC). The SCC will initiate a Safety Advisory (Enc. 1).
	50'- DAM OPENING	Falling	Normal Operations/ Flow Conditions	Recovery	Continue monitoring river conditions, consider canceling Safety Advisory (Enc. 1).

OHIO RIVER - PIKE ISLAND L&D

HIGH WATER Enclosure 1 (example) Broadcast Notice To Mariners

THE U.S. COAST GUARD CAPTAIN OF THE PORT HAS ISSUED THIS SAFETY ADVISORY DUE TO HIGH WATER / HIGH FLOW CONDITIONS AT PIKE ISLAND DAM, MILE MARKER 84.2, OHIO RIVER. THE GATE OPENING AT PIKE ISLAND DAM IS GREATER THAN 50 FEET. EXERCISE CAUTION WHILE TRANSITING UNDER THE I-470 BRIDGE, MILE MARKER 91.8, DUE TO THE STRONG SET TOWARDS THE LEFT DESCENDING BANK IN THAT AREA. EXERCISE CAUTION WHILE TRANSITING UNDER THE CSX RAILROAD BRIDGE, MILE MARKER 94.5, DUE TO ITS LIMITED HORIZONTAL CLEARANCE OF 320 FEET. IF PUSHING AHEAD, TOW VESSELS ARE RECOMMENDED TO HAVE A HELPER BOAT WHEN TRANSITING UNDER THE CSX RAILROAD BRIDGE TO ENSURE THEY MAINTAIN PROPER COURSE AND SPEED.

4.A. Ohio River Action Plan

4.A.6. Hannibal Lock and Dam High Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p align="center">HANNIBAL LOCK & DAM</p> <p align="center">OHIO RIVER MM: 126.4</p> <p align="center">FLOOD STAGE READING: 35.0 LG</p> <p>OTHER USEFUL DATA: MAX OPENING 172.8' GATES ALL OUT 32.0' CEASE LOCKING 37.0' LG 17.0' UG</p> <p>THE POTENTIAL FOR VESSEL ALLISIONS WITH HANNIBAL L&D TENDS TO INCREASE AS WATER RISES AND CURRENTS INCREASE. VESSELS EXPERIENCE OUTDRAFT WHILE APPROACHING LOCK DOWNBOUND. MARINERS ARE ADVISED TO EXERCISE EXTREME CAUTION, ENTER CHAMBERS AT SLOWEST SAFE SPEED, AND PREPARE FOR POTENTIAL OUTDRAFTS.</p> <p>CAUTIONARY NOTE 1: DRIFT TENDS TO ACCUMULATE IN THE UPPER APPROACH</p> <p>CAUTIONARY NOTE 2: WHEN MAKING A SOUTHBOUND APPROACH BE ALERT TO CURRENTS SETTING TOWARD THE ARRIVAL CELLS.</p> <p>CAUTIONARY NOTE 3: OUTDRAFTS MAY BE SEVERE WHEN GATE OPENING IS GREATER THAN 40'</p> <p>CAUTIONARY NOTE 4: 3000 CFS THROUGH THE HYDRO IS EQUAL TO 1' OF GATE OPENING</p> <p>USACE GAUGE READINGS REPORT</p>	< 40' DAM OPENING	Rising	Normal Operations/ Flow Conditions	n/a	Locking operations normal.
	40' + DAM OPENING	Rising & projected to continue rising rapidly	High Water/ High Flow Conditions	Watch	Consider for high water conference calls. MSU Huntington and/or HDWA will initiate a phone conference between CG, USACE and HDWA. Topics to discuss: water conditions, concerns, future actions, weather forecasts and river stages. Sector Ohio Valley Command Center will initiate a SMIB.
	100'+ DAM OPENING	Rising	Extreme High Water/ Extreme High Flow Conditions	Action	MSU Huntington and/or HDWA will initiate a phone conference between CG, USACE and HDWA. Factors to evaluate include rate of rise, amount of drift, and presence of ice and weather conditions. In extreme ice conditions consider providing local Pilot knowledge of river characteristics.
	100' - DAM OPENING	Falling	High Water/ High Flow Conditions	Action	Continue conference calls, monitor conditions, and adjust restrictions as appropriate.
	40' - DAM OPENING	Falling	Normal Operations / Normal Flow Conditions	Recovery	Continue monitoring river conditions and cancel SMIB.

4.A. Ohio River Action Plan

4.A.7. Willow Island Lock and Dam High Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p>WILLOW ISLAND LOCK & DAM</p> <p>OHIO RIVER MM: 161.7</p> <p>FLOOD STAGE READING: 37' LG</p> <p>OTHER USEFUL DATA: MAX OPENING 176' GATES ALL OUT 34.5' LG CEASE LOCKING 41.4' LG</p> <p>THE POTENTIAL FOR VESSEL ALLISIONS WITH WILLOW ISLAND L&D TENDS TO INCREASE AS WATER RISES AND CURRENT INCREASES. VESSELS EXPERIENCE OUTDRAFT WHILE APPROACHING LOCK DOWNBOUND. MARINERS ARE ADVISED TO EXERCISE EXTREME CAUTION, ENTER CHAMBERS AT SLOWEST SAFE SPEED, AND PREPARE FOR POTENTIAL OUTDRAFTS.</p> <p>CAUTIONARY NOTE 1: DRIFT TENDS TO ACCUMULATE IN THE UPPER APPROACH.</p> <p>CAUTIONARY NOTE 2: OUTDRAFT IS SEVERE AT APPROXIMATELY 150' OF GATE OPENING.</p> <p>GAUGE READINGS REPORT: USACE GAUGE READINGS REPORT</p>	<50' DAM OPENING	Rising	Normal Operations/ Flow Conditions	n/a	Locking operations normal.
	50'+ DAM OPENING	Rising & projected to continue rising rapidly	High Water/ High Flow Conditions	Watch	Consider for up river high water conference calls. MSU Huntington and/or HDWA will initiate a phone conference between CG, USACE and HDWA. Topics to discuss: water conditions, concerns, future actions, weather forecasts and river stages. MSU Huntington will submit a Safety Advisory request to the Sector Command Center (SCC). The SCC will initiate a SMIB.
	100'+ DAM OPENING	Rising	Extreme High Water/ Extreme High Flow Conditions	Action	MSU Huntington and/or HDWA will initiate a phone conference between CG, USACE and HDWA. Factors to evaluate include rate of rise, amount of drift, presence of ice and weather conditions. In extreme ice conditions consider providing local Pilot knowledge of river characteristics.
	100'- DAM OPENING	Falling	High Water/ High Flow Conditions	Action	Continue conference calls, monitor conditions, and adjust restrictions as appropriate.
	50'- DAM OPENING	Falling	Normal Operations / Normal Flow Conditions	Recovery	Continue monitoring river conditions and cancel SMIB.

4.A. Ohio River Action Plan

4.A.8. Parkersburg-Belpre Highway Bridge High Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p>Parkersburg-Belpre Highway Bridge B&O Rail Road Bridge Parkersburg Highway Bridge</p> <p>MILE MARKER:185-183</p> <p>Reference: WILLOW ISLAND LOCK & DAM</p> <p>FLOOD STAGE READING: 37' LG off of WILLOW ISLAND L&D</p> <p>OTHER USEFUL DATA Attained Willow Island L&D: MAX OPENING 176' GATES ALL OUT 33' LG CEASE LOCKING 33' LG</p> <p>THE TABLE USES DAM OPENING AT WILLIOW ISLAND L&D. THE POTENTIAL FOR VESSEL ALLISIONS WITH THESE BRIDGES TENDS TO INCREASE AS WATER RISES AND CURRENTS INCREASE. VESSELS EXPERIENCE HAZARDOUS CONDITIONS ASSOCIATED WITH STRONG CURRENTS AND INCREASED DRAFTING TOWARD BRIDGE PIERS. MARINERS ARE ADVISED TO EXERCISE EXTREME CAUTION, ENTER CHAMBERS AT MINIMUM SAFE SPEED, AND PREPARE FOR POTENTIAL OUTDRAFTS.</p> <p>CAUTIONARY NOTE 1: CONSIDER HORSEPOWER CAPABILITY, TOW SIZE, REGENCY THROUGH THE AREA, AND POTENTIAL EFFECTS OF STRONG CURRENTS WHILE NAVIGATING.</p> <p>CAUTIONARY NOTE 2: WHEN THE GATE OPENING AT WILLOW ISLAND L&D EXCEEDS 100' THE COAST GUARD, IN CONJUNCTION WITH THE HDWA, RECOMMENDS LOADED TOWS OF 800' OR GREATER TRANSITING MILES 183-185 OHIO RIVER DAYLIGHT HOURS ONLY.</p> <p>USACE GAUGE READINGS REPORT</p>	<50' DAM OPENING	Rising	Normal Operations/ Flow Conditions	n/a	Locking operations normal.
	50'+ DAM OPENING	Rising & projected to continue rising rapidly.	High Water/ High Flow Conditions	Watch	When Watch Phase conditions exist at Willow Island L/D the COTP will coordinate with industry to determine the need to initiate the calling tree and /or a phone conference between the CG, USACE, and HDWA. During this phone conference, topics that will be discussed are the water conditions, tow restrictions or assistance needed for navigating under the Parkersburg-Belpre Highway Bridge, B&O Rail Road Bridge and the Parkersburg Highway Bridge. All concerns and future actions should also be discussed. Future weather forecasts and river stages will be reviewed and river conditions will be assessed for future actions/considerations. MSU Huntington will submit a Safety Advisory request to the Sector Command Center (SCC). The SCC will initiate a SMIB.
	100'+ DAM OPENING	Rising	Extreme High Water/ Extreme High Flow Conditions	Action	MSU Huntington and/or HDWA will initiate a phone conference between CG, US USACE and HDWA. Factors to evaluate include rate of rise, amount of drift, presence of ice, weather conditions, and tow restrictions or assistance needed for navigating under the Parkersburg-Belpre Highway, B&O Rail Road Bridge and the Parkersburg Highway Bridge. In extreme ice conditions consider providing local Pilot knowledge of river characteristics. Cancel SMIB and issue Safety Advisory (Enc. 1)
	100'- DAM OPENING	Falling	High Water/ High Flow Conditions	Action	Continue conference calls, monitor conditions, and adjust restrictions/assistance as appropriate. Consider canceling Safety Advisory (Enc. 1) and issuing SMIB.
50'- DAM OPENING	Falling	Normal Operations / Normal Flow Conditions	Recovery	When Recovery Phase conditions exist at Willow Island L/D, the CG, USACE and HDWA will coordinate to ensure a proper recovery and timely return to normal operations. Topics of discussion should be current and future river conditions, channel surveys if necessary, recovery/salvage of sunken barges, and discuss any changes necessary for future events. Consider canceling SMIB.	

OHIO RIVER - PARKERSBURG-BELPRE HIGHWAY BRIDGE

HIGH WATER Enclosure 1 (example) Broadcast Notice To Mariners

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 BRIDGES AT PARKERSBURG, MILE MARKERS 183 TO 185, OHIO RIVER. THE GATE OPENING AT WILLOW ISLAND LOCK AND DAM, MILE MARKER 161.7, EXCEEDS 100 FEET. TOWS OF 800 FEET OR GREATER ARE RECOMMENDED TO TRANSIT MILE MARKERS 183 TO 185 DURING DAYLIGHT HOURS ONLY. MARINERS ARE ADVISED TO EXERCISE CAUTION DUE TO THE HAZARDOUS CONDITIONS ASSOCIATED WITH STRONG CURRENTS, INCREASED DRIFT, INCREASED DRAFTING TOWARD BRIDGE PIERS, AND SEVERE OUTDRAFTS. MARINERS ARE ADVISED TO CONSIDER HORSEPOWER CAPABILITY AND TOW SIZE. FLEET OPERATORS SHOULD REGULARLY CHECK THEIR FLEETS AND IMMEDIATELY REPORT BARGE BREAK-AWAYS TO THE U.S. COAST GUARD.

4.A. Ohio River Action Plan

4.A.9. Belleville Lock and Dam High Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p>BELLEVILLE LOCK & DAM</p> <p>OHIO RIVER MM: 203.9</p> <p>FLOOD STAGE READING: 45' LG</p> <p>OTHER USEFUL DATA: MAX OPENING: 176' GATES ALL OUT 33' LG CEASE LOCKING 43.0' LG</p> <p>THE POTENTIAL FOR VESSEL ALLISIONS WITH BELLEVILLE L&D TENDS TO INCREASE AS WATER RISES AND CURRENT INCREASES. VESSELS EXPERIENCE OUTDRAFT WHILE APPROACHING LOCK DOWNBOUND. MARINERS ARE ADVISED TO EXERCISE EXTREME CAUTION, ENTER CHAMBERS AT SLOWEST SAFE SPEED, AND PREPARE FOR POTENTIAL OUTDRAFTS.</p> <p>CAUTIONARY NOTE 1: DRIFT TENDS TO ACCUMULATE IN THE UPPER APPROACH.</p> <p>CAUTIONARY NOTE 2: OUTDRAFT IS SEVERE AT APPROXIMATELY 150' OF GATE OPENING.</p> <p>USACE GAUGE READINGS REPORT</p>	<60' DAM OPENING	Rising	Normal Operations/ Flow Conditions	n/a	Locking operations normal.
	60'+ DAM OPENING	Rising & projected to continue rising rapidly	High Water/ High Flow Conditions	Watch	Consider for up river high water conference calls. MSU Huntington and/or HDWA will initiate a phone conference between CG, USACE and HDWA. Topics to discuss: water conditions, concerns, future actions, weather forecasts and river stages. MSU Huntington will submit a Safety Advisory request to the Sector Command Center (SCC). The SCC will initiate a SMIB.
	90'+ DAM OPENING	Rising	Extreme High Water/ Extreme High Flow Conditions	Action	MSU Huntington and/or HDWA will initiate a phone conference between CG, USACE and HDWA. Factors to evaluate include rate of rise, amount of drift, and presence of ice and weather conditions. In extreme ice conditions consider providing local Pilot knowledge of river characteristics. Note: Ohio River MM 209 – 211(long bottom bend) recommended one way traffic
	90'- DAM OPENING	Falling	High Water/ High Flow Conditions	Action	Continue conference calls, monitor conditions, and adjust restrictions as appropriate.
	60' DAM OPENING	Falling	Normal Operations / Normal Flow Conditions	Recovery	Continue monitoring river conditions and cancel SMIB.

4.A. Ohio River Action Plan

4.A.10. Racine Lock and Dam High Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p>RACINE LOCK & DAM</p> <p>OHIO RIVER MILE MARKER: 237</p> <p>FLOOD STAGE READING: 38'LG</p> <p>OTHER USEFUL DATA: MAX OPENING: 200' GATES ALL OUT: 34' LG CEASE LOCKING: 49.9' LG</p> <p>THE POTENTIAL FOR VESSEL ALLISIONS WITH RACINE L&D TENDS TO INCREASE AS WATER RISES AND CURRENT INCREASES. VESSELS EXPERIENCE OUTDRAFT WHILE APPROACHING LOCK DOWNBOUND. MARINERS ARE ADVISED TO EXERCISE EXTREME CAUTION, ENTER CHAMBERS AT SLOWEST SAFE SPEED, AND PREPARE FOR POTENTIAL OUTDRAFTS.</p> <p>CAUTIONARY NOTE 1: DRIFT TENDS TO ACCUMULATE IN THE UPPER APPROACH.</p> <p>CAUTIONARY NOTE 2: OUTDRAFT IS SEVERE AT APPROXIMATELY 180' OF GATE OPENING.</p> <p>CAUTIONARY NOTE 3: MM 265 TO 267 (MOUTH OF THE KANAWHA RIVER) IS A HIGH TRAFFIC AREA</p> <p><u>USACE GAUGE READINGS REPORT</u></p>	<50' DAM OPENING	Rising	Normal Operations/ Flow Conditions	n/a	Locking operations normal.
	50'+ DAM OPENING	Rising & projected to continue rising rapidly	High Water/ High Flow Conditions	Watch	Consider for up river high water conference calls. MSU Huntington and/or HDWA will initiate a phone conference between CG, USACE and HDWA. Topics to discuss: water conditions, concerns, future actions, weather forecasts and river stages. MSU Huntington will submit a Safety Advisory request to the Sector Command Center (SCC). The SCC will initiate a SMIB.
	150' DAM OPENING	Rising	Extreme High Water/ Extreme High Flow Conditions	Action	MSU Huntington and/or HDWA will initiate a phone conference between CG, USACE and HDWA. Factors to evaluate include rate of rise, amount of drift, and presence of ice and weather conditions. In extreme ice conditions consider providing local Pilot knowledge of river characteristics. Note: MM 245 to 247 (sliding hill bend) recommended one way traffic.
	150'- DAM OPENING	Falling	High Water/ High Flow Conditions	Action	Continue conference calls, monitor conditions, and adjust restrictions as appropriate.
	50'- DAM OPENING	Falling	Normal Operations / Normal Flow Conditions	Recovery	Continue monitoring river conditions and cancel SMIB.

4.A. Ohio River Action Plan

4.A.11. Robert C. Byrd Lock and Dam High Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p align="center">ROBERT C. BYRD LOCK & DAM</p> <p align="center">OHIO RIVER MILE MARKER: 279.2</p> <p align="center">FLOOD STAGE READING: 50' LG</p> <p>OTHER USEFUL DATA: MAX OPENING 144' GATES ALL OUT 33.5' LG CEASE LOCKING 53' LG</p> <p>THE POTENTIAL FOR VESSEL ALLISIONS WITH ROBERT C. BYRD L&D TENDS TO INCREASE AS WATER RISES AND CURRENTS INCREASE. VESSELS EXPERIENCE OUTDRAFT WHILE APPROACHING LOCK DOWNBOUND. MARINERS ARE ADVISED TO EXERCISE EXTREME CAUTION, ENTER CHAMBERS AT SLOWEST SAFE SPEED, AND PREPARE FOR POTENTIAL OUTDRAFTS.</p> <p>CAUTIONARY NOTE 1: EXERCISE CAUTION DEPARTING CANAL UPBOUND IN HIGH FLOW CONDITIONS; HEAD OF LOADED TOW MAY DIVE.</p> <p>CAUTIONARY NOTE 2: OUTDRAFT IS SEVERE AT APPROXIMATELY 130' OF GATE OPENING.</p> <p>CAUTIONARY NOTE 3: MM 265 TO 267 (MOUTH OF THE KANAWHA RIVER) IS A HIGH TRAFFIC AREA</p> <p>CAUTIONARY NOTE 4: MM 304 TO 328 (HUNTINGTON CATLETTSBURG HARBOR) IS A HIGH TRAFFIC AREA</p> <p>USACE GAUGE READINGS REPORT</p>	<40' DAM OPENING	Rising	Normal Operations/ Flow Conditions	n/a	Locking operations normal.
	40'+ DAM OPENING	Rising & projected to continue rising rapidly	High Water/ High Flow Conditions	Watch	Consider for up river high water conference calls. MSU Huntington and/or HDWA will initiate a phone conference between CG, USACE and HDWA. Topics to discuss: water conditions, concerns, future actions, weather forecasts and river stages. MSU Huntington will submit a Safety Advisory request to the Sector Command Center (SCC). The SCC will initiate a SMIB.
	144'+ DAM OPENING	Rising	Extreme High Water/ Extreme High Flow Conditions	Action	MSU Huntington and/or HDWA will initiate a phone conference between CG, USACE and HDWA. Factors to evaluate include rate of rise, amount of drift, and presence of ice and weather conditions. In extreme ice conditions consider providing local Pilot knowledge of river characteristics.
	144'- DAM OPENING	Falling	High Water/ High Flow Conditions	Action	Continue conference calls, monitor conditions, and adjust restrictions as appropriate.
	40'- DAM OPENING	Falling	Normal Operations / Normal Flow Conditions	Recovery	Continue monitoring river conditions and cancel SMIB.

4.A. Ohio River Action Plan

4.A.12. Greenup Lock and Dam High Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p style="text-align: center;">GREENUP LOCK & DAM</p> <p style="text-align: center;">OHIO RIVER MM: 341.0</p> <p style="text-align: center;">FLOOD STAGE READING: 54' LG</p> <p style="text-align: center;">OTHER USEFUL DATA: MAX OPENING 242' GATES ALL OUT 42' LG CEASE LOCKING 59' LG</p> <p>THE POTENTIAL FOR VESSEL ALLISIONS WITH GREENUP L&D TENDS TO INCREASE AS WATER RISES AND CURRENT INCREASES. VESSELS EXPERIENCE OUTDRAFT WHILE APPROACHING LOCK DOWNBOUND. MARINERS ARE ADVISED TO EXERCISE EXTREME CAUTION, ENTER CHAMBERS AT SLOWEST SAFE SPEED, AND PREPARE FOR POTENTIAL OUTDRAFTS.</p> <p>CAUTIONARY NOTE 1: DRIFT TENDS TO ACCUMULATE IN THE UPPER APPROACH.</p> <p>CAUTIONARY NOTE 2: OUTDRAFT IS SEVERE AT APPROXIMATELY 180° OF GATE OPENING.</p> <p>CAUTIONARY NOTE 3: MM 304 TO 328 (HUNTINGTON CATLETTSBURG HARBOR) IS A HIGH TRAFFIC AREA</p> <p>USACE GAUGE READINGS REPORT</p>	<100' DAM OPENING	Rising	Normal Operations/ Flow Conditions	n/a	Locking operations normal.
	100'+ DAM OPENING	Rising & projected to continue rising rapidly	High Water/ High Flow Conditions	Watch	Consider for up river high water conference calls. MSU Huntington and/or HDWA will initiate a phone conference between CG, USACE and HDWA. Topics to discuss: water conditions, concerns, future actions, weather forecasts and river stages. MSU Huntington will submit a Safety Advisory request to the Sector Command Center (SCC). The SCC will initiate a SMIB.
	200'+ DAM OPENING	Rising	Extreme High Water/ Extreme High Flow Conditions	Action	MSU Huntington and/or HDWA will initiate a phone conference between CG, USACE and HDWA. Factors to evaluate include rate of rise, amount of drift, and presence of ice and weather conditions. In extreme ice conditions consider providing local Pilot knowledge of river characteristics.
	200'- DAM OPENING	Falling	High Water/ High Flow Conditions	Action	Continue conference calls, monitor conditions, and adjust restrictions as appropriate.
	100'- DAM OPENING	Falling	Normal Operations / Normal Flow Conditions	Recovery	Continue monitoring river conditions and cancel SMIB.

4.A. Ohio River Action Plan

4.A.13. Meldahl Lock and Dam High Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p align="center">MELDAHL LOCK & DAM</p> <p align="center">OHIO RIVER MM: 436.2</p> <p align="center">FLOOD STAGE READING: 51' LG</p> <p align="center">OTHER USEFUL DATA: MAX OPENING 360' GATES ALL OUT 41.6' LG</p> <p>THE POTENTIAL FOR VESSEL ALLISIONS WITH MELDAHL L&D TENDS TO INCREASE AS WATER RISES AND CURRENT INCREASES. VESSELS EXPERIENCE OUTDRAFT WHILE ENTERING SOUTHBOUND LOCK CHAMBER. MARINERS ARE ADVISED TO EXERCISE EXTREME CAUTION, ENTER CHAMBERS AT SLOWEST SAFE SPEED, AND PREPARE FOR POTENTIAL OUTDRAFTS.</p> <p>CAUTIONARY NOTE 1: OUTDRAFT IS SEVERE AT APPROXIMATELY 300' OF GATE OPENING.</p> <p>CAUTIONARY NOTE 2: WHEN TRANSITING BETWEEN MM 462 AND MM 473 MARINERS SHOULD BE AWARE OF A HIGH CONCENTRATION OF PLEASURE CRAFTS DURING SUMMER MONTHS AND SPECIAL EVENTS.</p> <p>CAUTIONARY NOTE 3: RADIO COMMUNICATIONS ARE POOR BETWEEN MM 461 AND MM 474. MARINERS ARE ADVISED TO UTILIZE CH-13 AND CH-20, OR ALL OTHER AVAILABLE MEANS OF COMMUNICATION TO ENSURE SAFE TRANSIT.</p> <p>USACE GAUGE READINGS REPORT</p>	<60' DAM OPENING	Rising	Normal Operations/ Flow Conditions **Note 1**	n/a	Locking operations normal.
	60'+ DAM OPENING	Rising & projected to continue rising rapidly	High Water/ High Flow Conditions	Watch	Sector Ohio Valley Command Center initiates a SMIB.
	90'+ DAM OPENING	Rising	Extreme High Water/ Extreme High Flow Conditions	Action	COTP Ohio Valley and/or CORMIG will initiate a phone conference between CG, USACE and CORMIG. Factors to evaluate include rate of rise, amount of drift, presence of ice and weather conditions. In extreme ice conditions consider providing local Pilot knowledge of river characteristics. Note: RNA (Enc. 1) is initiated when the Cincinnati Gauge reads 45'. Facilities and fleeting areas must be in compliance with USACE Permit restrictions regarding barge storage.
	90'- DAM OPENING	Falling	High Water/ High Flow Conditions	Action	Continue conference calls, monitor conditions, and adjust restrictions as appropriate. Consider SMIB.
	60'- DAM OPENING	Falling	Normal Operations/ Normal Flow Conditions	Recovery	Continue monitoring river conditions and consider canceling SMIB.

OHIO RIVER - MELDAHL LOCK & DAM

HIGH WATER Enclosure 1 (example)

Broadcast Notice To Mariners

CINCINNATI REGULATED NAVIGATION AREA

DUE TO THE HIGH WATER LEVEL AT THE CINCINNATI GAUGE BEING 45 FEET OR GREATER, A REGULATED NAVIGATION AREA IS IN EFFECT IN THE CINCINNATI HARBOR FROM MI 466.0 TO 473.0. ENTRY INTO THIS ZONE BY ALL D/B VESSELS TOWING CARGOES REGULATED BY TITLE 46 CFR SUBCHAPTER D AND O WITH A TOW LENGTH EXCEEDING 600 FEET, EXCLUDING TOWBOAT, ARE PROHIBITED FROM 1/2 HOUR BEFORE SUNSET TO 1/2 HOUR AFTER SUNRISE. IAW THE PROVISIONS OUTLINED IN TITLE 33 CFR 165.821, THIS REGULATED NAVIGATION AREA WILL REMAIN IN EFFECT UNTIL THE CINCINNATI GAUGE DROPS BELOW 45 FEET. ALL MARINERS ARE URGED TO USE CAUTION WHEN TRANSITING THIS AREA. MARINERS WANTING TO MAKE PASSING ARRANGEMENTS SHOULD ATTEMPT COMMUNICATIONS VIA CH-20 IF UNABLE TO REACH INTENDED TRAFFIC ON CH-13.

4.A. Ohio River Action Plan

4.A.14. Markland Lock and Dam High Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p style="text-align: center;">MARKLAND LOCK & DAM</p> <p style="text-align: center;">OHIO RIVER MM: 531.5</p> <p style="text-align: center;">FLOOD STAGE READING: 16' UG</p> <p style="text-align: center;">OTHER USEFUL DATA: MAX OPENING 480' GATES ALL OUT 47' LG CEASE LOCKING 55' LG</p> <p>TABLE USES A COMBINATION OF DAM OPENING AND LOWER GAUGE READINGS. THE POTENTIAL FOR VESSEL ALLISIONS WITH MARKLAND L&D TENDS TO INCREASE AS WATER RISES AND CURRENTS INCREASE. VESSELS EXPERIENCE OUTDRAFT WHILE ENTERING SOUTHBOUND LOCK CHAMBER. MARINERS ARE ADVISED TO EXERCISE EXTREME CAUTION, ENTER CHAMBERS AT SLOWEST SAFE SPEED, AND PREPARE FOR POTENTIAL OUTDRAFTS.</p> <p>CAUTIONARY NOTE 1: DOWNBOUND MARINERS NEED TO BE AWARE OF POCKET AND PROTRUDING POINT THAT HAS A POTENTIAL TO SADDLEBAG THE TOW ON THE LEFT DESCENDING BANK AT MM 531.</p> <p>CAUTIONARY NOTE 2: OUTDRAFT IS SEVERE AT APPROXIMATELY 400' OF GATE OPENING.</p> <p>CAUTIONARY NOTE 3: WHEN TRANSITING BETWEEN MM 462 AND MM 473 MARINERS SHOULD BE AWARE OF A HIGH CONCENTRATION OF PLEASURE CRAFTS DURING SUMMER MONTHS AND SPECIAL EVENTS.</p> <p>CAUTIONARY NOTE 4: RADIO COMMUNICATIONS ARE POOR BETWEEN MM 461 AND MM 474. MARINERS ARE ADVISED TO UTILIZE CH-13 AND CH-20, OR ALL OTHER AVAILABLE MEANS OF COMMUNICATION TO ENSURE SAFE TRANSIT.</p>	<50' DAM OPENING	Rising	Normal Operations/Flow Conditions	n/a	Locking operations normal.
	50'+ DAM OPENING	Rising & projected to continue rising rapidly	High Water/Increased Flow Conditions	Watch	Sector Ohio Valley Command Center will initiate a SMIB.
	120'+ DAM OPENING	Rising	Extreme High Water/Extreme High Flow Conditions	Action	COTP Ohio Valley and/or CORMIG will initiate a phone conference between CG, USACE and CORMIG. Factors to evaluate include rate of rise, amount of drift, presence of ice and weather conditions. In extreme ice conditions consider providing local Pilot knowledge of river characteristics. Note: RNA (Encl. 1) is initiated when the Cincinnati Gauge reads 45' or greater.
	120'- DAM OPENING	Falling	High Water/Increased Flow Conditions	Action	Continue conference calls, monitor conditions, and adjust restrictions as appropriate. Consider SMIB.
	50'- DAM OPENING	Falling	Normal Operations/Normal Flow Conditions	Recovery	Continue monitoring river conditions and consider canceling SMIB.

<p>CAUTIONARY NOTE 5: WHEN THE GAUGE AT CINCINNATI IS AT 39 FEET OR GREATER, THE BARGE FLEETING AREA LOCATED AT MM 472.8 RDB (upstream from Schletker Light, LLN-26030) MUST REDUCE FLEET SIZE TO NO MORE THAN 4 BARGES WIDE BY 5 LONG.</p>					
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[USACE GAUGE READINGS REPORT](#)

OHIO RIVER - MARKLAND LOCK & DAM

HIGH WATER Enclosure 1 (example) Broadcast Notice To Mariners

CINCINNATI REGULATED NAVIGATION AREA

DUE TO THE HIGH WATER LEVEL AT THE CINCINNATI GAUGE BEING 45 FEET OR GREATER, A REGULATED NAVIGATION AREA IS IN EFFECT IN THE CINCINNATI HARBOR FROM MI 466.0 TO 473.0. ENTRY INTO THIS ZONE BY ALL D/B VESSELS TOWING CARGOES REGULATED BY TITLE 46 CFR SUBCHAPTER D AND O WITH A TOW LENGTH EXCEEDING 600 FEET, EXCLUDING TOWBOAT, ARE PROHIBITED FROM 1/2 HOUR BEFORE SUNSET TO 1/2 HOUR AFTER SUNRISE. IAW THE PROVISIONS OUTLINED IN TITLE 33 CFR 165.821, THIS REGULATED NAVIGATION AREA WILL REMAIN IN EFFECT UNTIL THE CINCINNATI GAUGE DROPS BELOW 45 FEET. ALL MARINERS ARE URGED TO USE CAUTION WHEN TRANSITING THIS AREA. MARINERS WANTING TO MAKE PASSING ARRANGEMENTS SHOULD ATTEMPT COMMUNICATIONS VIA CH-20 IF UNABLE TO REACH INTENDED TRAFFIC ON CH-13.

4.A. Ohio River Action Plan

4.A.15. McAlpine Lock and Dam High/Low Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p style="text-align: center;">MCALPINE LOCK & DAM</p> <p style="text-align: center;">OHIO RIVER MM: 606.8</p> <p style="text-align: center;">FLOOD STAGE READING: 23' UG</p> <p style="text-align: center;">OTHER USEFUL DATA: MAX OPENING 113' GATES ALL OUT 28'-30' LG CEASE LOCKING 66' LG</p> <p>TABLE USES A COMBINATION OF DAM OPENING AND LOWER GAUGE READING. THE POTENTIAL FOR VESSEL ALLISIONS WITH MCALPINE L&D TENDS TO INCREASE AS WATER RISES AND CURRENTS INCREASE. VESSELS EXPERIENCE OUTDRAFT WHILE ENTERING SOUTHBOUND PORTLAND CANAL. MARINERS ARE ADVISED TO EXERCISE EXTREME CAUTION, ENTER CHAMBERS AT SLOWEST SAFE SPEED, AND PREPARE FOR POTENTIAL OUTDRAFTS.</p> <p>CAUTIONARY NOTE 1: THE VANE DYKE AT THE ENTRANCE TO THE LOUISVILLE AND PORTLAND CANAL AT OHR MM 604.3 EXPERIENCES STRONG OUTDRAFTS ON THE UP STREAM END DURING HIGH FLOWS.</p> <p>CAUTIONARY NOTE 2: SEDIMENT SHOALING FROM MM 606 TO 609 RESTRICTS VESSEL TRAFFIC AT 10' ON THE LOWER GAUGE; VESSELS SHOULD USE CAUTION WHEN TRANSITING THIS AREA.</p> <p>USACE GAUGE READINGS REPORT</p>	<60' DAM OPENING	Rising	Normal Operations/ Flow Conditions	n/a	Locking operations normal.
	60'+ DAM OPENING	Rising & projected to continue rising rapidly	High Water/ High Flow Conditions	Watch	Sector Ohio Valley Command Center initiates a SMIB
	100'+ DAM OPENING or 13' UG	Rising	Extreme High Water/ Extreme High Flow Conditions	Action	COTP Ohio Valley and/or CORMIG will initiate a phone conference between CG, USACE and CORMIG. Factors to evaluate include rate of rise, amount of drift, and presence of ice and weather conditions. In extreme ice conditions, consider providing local Pilot knowledge of river characteristics. Note: Safety Zone (Encl. 1) is initiated when the McAlpine L&D reaches 13.0' UG (VTS Louisville activated).
	100'- DAM OPENING or < 13' UG	Falling	High Water/Increased Flow Conditions	Watch	Continue conference calls, monitor conditions, and adjust restrictions as appropriate. Consider Safety Advisory, (Enc. 1) and cancel Safety Zone (Encl. 1) once river levels fall below 13' UG.
	60'- DAM OPENING	Falling	Normal Operations/ Normal Flow Conditions	Recovery	Continue monitoring river conditions and cancel SMIB.
	9.0' LG >20' DAM OPENING	Falling	Normal Operations/ Normal Flow Conditions	Watch	Locking operations normal.
	8.9' – 8.5' LG	Falling	Low Water / Low Flow Conditions	Watch	COTP Ohio Valley issues SMIB.
	8.5'- LG	Falling	Extreme low Water/ Extreme low Flow Conditions	Action	Continue conference calls, monitor conditions, and adjust restrictions as appropriate. Consider Safety Zone (Enc. 2) versus SMIB. Mile markers 637-677 may warrant one-way traffic during low water conditions.
	8.5' + LG	Rising	Low Water/ Low Flow Conditions	Recovery	Continue monitoring river conditions and cancel SMIB.

OHIO RIVER - McALPINE LOCK & DAM

HIGH WATER Enclosure 1 (example) Broadcast Notice To Mariners

THE VESSEL TRAFFIC SYSTEM LOUISVILLE, KY WAS ACTIVATED ON **DD MMM YY**. THIS SYSTEM IS FROM MI 593.0 TO 606.8 AND WILL REMAIN IN EFFECT WHILE MCALPINE L/D UPPER GAUGE READS 13.0 FT AND ABOVE. OPERATING PROCEDURES AND INSTRUCTIONS TO MARINERS ARE DESCRIBED IN 33 CFR 161.

LOW WATER Enclosure 2 (example) Broadcast Notice To Mariners

THE U.S. COAST GUARD CAPTAIN OF THE PORT HAS ESTABLISHED A SAFETY ZONE FROM MILE MARKER _____ TO _____ OHIO RIVER. ALL MARINERS ARE TO PROCEED WITH CAUTION AND REMAIN IN THE NAVIGABLE CHANNEL DUE TO DECREASING WATER LEVELS. ALL VESSELS MUST MONITOR CHANNEL DEPTHS AND ENSURE THAT ADEQUATE WATER EXISTS FOR THEIR VESSEL DRAFTS. VESSEL DRAFTS SHALL NOT EXCEED _____ FT. REPORT ALL GROUNDINGS TO THE U.S. COAST GUARD.

4.A. Ohio River Action Plan

4.A.16. Cannelton Lock and Dam High Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p align="center">CANNELTON LOCK & DAM</p> <p>OHIO RIVER MM: 720.7</p> <p>FLOOD STAGE READING: 42' LG</p> <p>OTHER USEFUL DATA: MAX OPENING 420' GATES ALL OUT 34.5'-35.0' LG CEASE LOCKING 51' LG</p> <p>THE POTENTIAL FOR VESSEL ALLISIONS WITH CANNELTON L&D TENDS TO INCREASE AS WATER RISES AND CURRENTS INCREASE. VESSELS EXPERIENCE OUTDRAFT WHILE ENTERING SOUTHBOUND LOCK CHAMBER. MARINERS ARE ADVISED TO EXERCISE EXTREME CAUTION, ENTER CHAMBERS AT SLOWEST SAFE SPEED, AND PREPARE FOR POTENTIAL OUTDRAFTS.</p> <p>CAUTIONARY NOTE 1: OUTDRAFT IS SEVERE AT APPROXIMATELY 400' OF GATE OPENING.</p> <p>CAUTIONARY NOTE 2: WHEN LEAVING THE LOCK NORTHBOUND WITH LOADED TOWS, MARINERS SHOULD BE AWARE OF AN AREA OF SLACK WATER FROM THE CHAMBERS TO A DIKE SEVERAL HUNDRED YARDS UPRIVER. MARINERS SHOULD CONSIDER REDUCING POWER IN ANTICIPATION OF INCREASED CURRENTS WHEN LEAVING SLACK WATER AS THEY PASS THE DIKE, TO PREVENT BREAKAWAYS OR DIVING.</p> <p>USACE GAUGE READINGS REPORT</p>	<80' DAM OPENING	Rising	Normal Operations/Flow Conditions	n/a	Locking operations normal.
	80'+ DAM OPENING	Rising & projected to continue rising rapidly	High Water/Increased Flow Conditions	Watch	Sector Ohio Valley Command Center will initiate a SMIB.
	120'+ DAM OPENING	Rising	Extreme High Water/Extreme High Flow Conditions	Action	COTP Ohio Valley and/or CORMIG will initiate a phone conference between CG, USACE and CORMIG. Factors to evaluate include rate of rise, amount of drift, presence of ice and weather conditions. In extreme ice conditions consider providing local Pilot knowledge of river characteristics.
	120'- DAM OPENING	Falling	High Water/Increased Flow Conditions	Action	Continue conference calls, monitor conditions, and adjust restrictions as appropriate. Consider SMIB.
	80'- DAM OPENING	Falling	Normal Operations/Normal Flow Conditions	Recovery	Continue monitoring river conditions and cancel SMIB.

4.A. Ohio River Action Plan

4.A.17. Newburgh Lock and Dam High Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p>NEWBURGH LOCK & DAM</p> <p>OHIO RIVER MM: 776.1</p> <p>FLOOD STAGE READING: 38' LG</p> <p>OTHER USEFUL DATA: MAX OPENING 252' GATES ALL OUT 27.5'-28.0' LG CEASE LOCKING 47' LG</p> <p>THE POTENTIAL FOR VESSEL ALLISIONS WITH NEWBURGH L&D TENDS TO INCREASE AS WATER RISES AND CURRENTS INCREASE. VESSELS EXPERIENCE OUTDRAFT WHILE ENTERING SOUTHBOUND LOCK CHAMBER. MARINERS ARE ADVISED TO EXERCISE EXTREME CAUTION, ENTER CHAMBERS AT SLOWEST SAFE SPEED, AND PREPARE FOR POTENTIAL OUTDRAFTS.</p> <p>CAUTIONARY NOTE 1: THERE IS NOTICEABLE SHOALING DURING LOW WATER CONDITIONS FROM MM 723 TO MM 737.</p> <p>CAUTIONARY NOTE 2: OUTDRAFT IS SEVERE ON THE UPPER SIDE OF THE LOCK DUE TO HIGH FLOWS.</p> <p>USACE GAUGE READINGS REPORT</p>	<60' DAM OPENING	Rising	Normal Operations/Flow Conditions	n/a	Locking operations normal.
	60'+ DAM OPENING	Rising & projected to continue rising rapidly	High Water/Increased Flow Conditions	Watch	Sector Ohio Valley Command Center will initiate a SMIB.
	100'+ DAM OPENING	Rising	Extreme High Water/Extreme High Flow Conditions	Action	COTP Ohio Valley and/or CORMIG will initiate a phone conference between CG, USACE and CORMIG. Once the LG reaches 47' LG implement Broadcast Notice to Mariners (Encl. 1) advising mariners that the Newburgh L&D has ceased locking and the weir is navigable. Consider implementing the following restrictions: 250 HP minimum per loaded barge, daylight transits only for tows comprised of barges carrying cargoes regulated under Title 46 CFR Subchapter D & O and/or more than 6 barges loaded with any product, and/or a standby assist vessel of appropriate HP to provide assistance as needed. Factors to evaluate include rate of rise, amount of drift, presence of ice and weather conditions. In extreme ice conditions consider providing local Pilot knowledge of river characteristics. Note: High/low water conditions may warrant one way traffic due to ATON changes from MM 791 to MM 795.
	100' - DAM OPENING	Falling	High Water/Increased Flow Conditions	Action	Continue conference calls, monitor conditions, and adjust restrictions as appropriate. Cancel Broadcast Notice to Mariners (Encl. 1) Consider SMIB.
	60'- DAM OPENING	Falling	Normal Operations/Normal Flow Conditions	Recovery	Continue monitoring river conditions and cancel SMIB.

OHIO RIVER - NEWBURGH LOCK & DAM

HIGH WATER Enclosure 1 (example) Broadcast Notice to Mariners

THE U.S. COAST GUARD CAPTAIN OF THE PORT HAS ISSUED THIS SAFETY ADVISORY DUE TO HIGH WATER THAT EXISTS IN THE VICINITY OF NEWBURGH LOCK AND DAM, MILE MARKER 776.1 OHIO RIVER. MARINERS ARE ADVISED THAT NEWBURGH LOCK AND DAM HAS CEASED LOCKING OPERATIONS DUE TO HIGH WATER AND MARINERS SHOULD CONTACT THE LOCK OPERATOR TO DETERMINE IF IT IS SAFE TO NAVIGATE OVER THE WEIR

4.A. Ohio River Action Plan

4.A.18. J. T. Myers Lock and Dam High Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p>J. T. MYERS LOCK & DAM</p> <p>OHIO RIVER MM: 846</p> <p>FLOOD STAGE READING: 37' LG</p> <p>OTHER USEFUL DATA: MAX OPENING 270' GATES ALL OUT 30' LG CEASE LOCKING 47' LG</p> <p>THE POTENTIAL FOR VESSEL ALLISIONS WITH J. T. MYERS L&D TENDS TO INCREASE AS WATER RISES AND CURRENT INCREASES. VESSELS EXPERIENCE OUTDRAFTS WHILE ENTERING SOUTHBOUND LOCK CHAMBER. MARINERS ARE ADVISED TO EXERCISE EXTREME CAUTION, ENTER CHAMBERS AT SLOWEST SAFE SPEED, AND PREPARE FOR POTENTIAL OUTDRAFTS.</p> <p>CAUTIONARY NOTE 1: SHALLOW WATER OFTEN EXISTS BELOW THE LOCK FROM MM 847 TO MM 851 DUE TO OUT FLOW FROM THE WABASH RIVER</p> <p>CAUTIONARY NOTE 2: OUTDRAFT IS SEVERE ON THE UPPER SIDE OF THE LOCK DUE TO HIGH FLOWS.</p> <p>USACE GAUGE READINGS REPORT</p>	<100' DAM OPENING	Rising	Normal Operations/Flow Conditions	n/a	Locking operations normal.
	100'+ DAM OPENING	Rising & projected to continue rising rapidly	High Water/Increased Flow Conditions	Watch	Sector Ohio Valley Command Center will initiate a SMIB.
	150'+ DAM OPENING	Rising	Extreme High Water/Extreme High Flow Conditions	Action	COTP Ohio Valley and/or CORMIG will initiate a phone conference between CG, USACE and CORMIG. Once the LG reaches 47' LG implement Safety Zone (Encl. 1) advising mariners that the J. T. Myers L&D has ceased locking and the weir is navigable. Consider implementing the following restrictions: 250 HP minimum per loaded barge, daylight transits only for tows comprised of barges carrying cargoes regulated under Title 46 CFR Subchapter D & O and/or more than 6 barges loaded with any product, and/or a standby assist vessel of appropriate HP to provide assistance as needed. Additional factors to evaluate include rate of rise, amount of drift, presence of ice and weather conditions. In extreme ice conditions consider providing local Pilot knowledge of river characteristics. Note: High/low water conditions may warrant one way traffic due to ATON changes from MM 791 to MM 795.
	150'- DAM OPENING	Falling	High Water/Increased Flow Conditions	Action	Continue conference calls, monitor conditions, and adjust restrictions as appropriate. Cancel Safety Zone (Enc. 1), Consider SMIB.
	100'- DAM OPENING	Falling	Normal Operations/Normal Flow Conditions	Recovery	Continue monitoring river conditions and cancel SMIB.

OHIO RIVER – J. T. MYERS LOCK & DAM

HIGH WATER Enclosure 1 (example) Broadcast Notice to Mariners

THE U.S. COAST GUARD CAPTAIN OF THE PORT HAS ESTABLISHED A SPECIAL LOCAL REGULATION FOR J. T. MYERS LOCK AND DAM, MILE MARKER 845, OHIO RIVER. THE J. T. MYERS LOCK AND DAM HAS CEASED LOCKING. THE J. T. MYERS WEIR IS NAVIGABLE UNDER THE FOLLOWING CONDITIONS: MINIMUM HORSE POWER PER LOADED BARGE IS 250 HP. TOWS COMPRISED OF BARGES CARRYING CARGOES REGULATED UNDER TITLE 46 CFR SUCHAPTER D AND O (KNOWN AS RED FLAG BARGES) AND/OR WITH MORE THAN 6 BARGES LOADED WITH ANY PRODUCT, ARE RESTRICTED TO DAYLIGHT TRANSIT ONLY. A STANDBY ASSIST BOAT WITH APPROPRIATE HORSE POWER IS ON SCENE TO PROVIDE ASSISTANCE AS NEEDED. AT FIRST LIGHT, NORTH BOUND TOWS WILL BE CLEARED FIRST, FOLLOWED BY SOUTHBOUND TOWS. THE J. T. MYERS LOCK OPERATOR WILL ESTABLISH THE TRANSIT QUEUE. TOWS SHOULD NOTIFY THE LOCK OPERATOR WHEN APPROACHING J. T. MYERS L/D. A CARRIER MAY REQUEST AN EXCEPTION TO THE ABOVE. REQUESTS SHOULD BE MADE DURING NORMAL BUSINESS HOURS TO THE CAPTAIN OF THE PORT AT 1-800-253-7465. THE CAPTAIN OF THE PORT MAY CONSULT WITH THE CENTRAL OHIO RIVER MARINE INDUSTRY GROUP (CORMIG) CHAIRMAN, BUT IT WILL BE THE CAPTAIN OF THE PORT WHO WILL MAKE A FINAL DETERMINATION ON EACH REQUEST. MARINERS ARE ADVISED THAT FAILURE TO FOLLOW THIS REGULATION MAY RESULT IN A CIVIL PENALTY.

4.A. Ohio River Action Plan

4.A.19. Smithland Lock and Dam High Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING UPPER GAUGE	TREND	DESCRIPTION	PHASE	ACTION
<p>SMITHLAND LOCK & DAM</p> <p>OHIO RIVER MM: 918.5</p> <p>REFERENCE GAUGE: Ohio River at Smithland L&D</p> <p>FLOOD STAGE READING: 20'0"</p> <p>OTHER USEFUL DATA: NOAA RIVER GAUGE FOR SMITHLAND L&D INDICATE RIVER LEVELS ON THE LOWER PORTION OF THE DAM. VESSEL ALLISIONS INCREASE AS WATER RISES AND CURRENT INCREASES. VESSELS EXPERIENCE OUTDRAFT WHILE ENTERING SOUTHBOUND RIVERSIDE LOCK CHAMBER SO LOCAL PRACTICE IS TO USE THE LANDSIDE LOCK CHAMBER WHEN DOWNBOUND.</p> <p>USACE GAUGE READINGS REPORT</p> <p>Smithland L&D #: 618-564-2315</p>	<12'3"	Rising	Normal Operations	n/a	Locking Operations Normal.
	15'5"	Rising & projected to rise rapidly	High Water	Watch	Lockmaster contacts MSU Paducah & ICE Committee Chairman. Consider ICE Committee conference call w/USACE, MSU Paducah, & CGC CHIPPEWA. SOHV CC will release high water SMIB.
	20'0"	Rising	Extreme High Water	Watch	Lockmaster contacts CG MSU Paducah & ICE Committee Chairman. Hold ICE Committee conference call w/USACE, MSU Paducah & CGC CHIPPEWA. Safety Advisory in effect. Consider helper boat w/250' or more of dam open to reduce out draft issues & discuss potential for rising river stage.
	27'4" (or 49'0" lower gauge)	Rising	Max Locking Ability	Action	Lockmaster contacts CG MSU Paducah & ICE Committee Chairman. Smithland L&D ceases locking vessels. MSU Paducah will submit a BNM request to the SOHV CC. Hold ICE Committee conference call w/USACE & MSU Paducah. Discuss delays & consider pre-identified lay-up areas in the event of a river closure.
	29'0" & above	Rising	Potential Weir Navigation elevation is 14 ft	Action	Lockmaster contacts CG MSU Paducah & ICE Committee Chairman. Hold ICE Committee conf call w/USACE & MSU Paducah to determine potential for weir navigation. If weir is navigable, MSU Paducah implements a Safety Zone. Consider assist vessel for up-bound traffic, appropriate HP or tow restrictions, one way traffic patterns for weir navigation safety, and providing local Pilot knowledge of weir characteristics.
	27'4"	Falling	Resume Locking Ability	Recovery	Lockmaster contacts CG MSU Paducah & ICE Committee Chairman. Smithland L&D resumes locking vessels. Hold ICE Committee conf call w/USACE & MSU Paducah to discuss queue management. MSU Paducah cancels Safety Zone. SOHV CC re-issues SMIB.
	20'0"	Falling	Extreme High Water	Recovery	SMIB in remains in effect
	12'5" - 15'5"	Falling	High Water	Recovery	Continue monitoring river condition and cancel SMIB.
	12'0"	Falling	Normal Operations	n/a	Locking Operations Normal.

4.A. Ohio River Action Plan

4.A.20. Smithland Lock and Dam Low Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING LOWER GAUGE	TREND	DESCRIPTION	PHASE	ACTION
<p>SMITHLAND LOCK & DAM</p> <p>OHIO RIVER MM: 918.5</p> <p>REFERENCE GAUGE: Ohio River at Smithland L&D</p> <p>OTHER USEFUL DATA: TO DETERMINE NAVIGABILITY OVER MITER SILLS CONSULT LOCKMASTER. L&D 52 MAINTAINS AN AVERAGE LOWER GAUGE OF 12'4" AT SMITHLAND L&D. LOWER SIDE OF SMITHLAND L&D TO THE FOOT OF CUMBERLAND ISLAND IS ONE WAY TRAFFIC AT ALL TIMES.</p> <p>USACE GAUGE READINGS REPORT</p> <p>Smithland Lock #:618-564-2315</p>	12'0" and above	Falling	Normal Operations	n/a	Lock Operations Normal.
	11'0"	Falling	Low Water	Watch	Lockmaster contacts CG MSU Paducah & ICE Committee Chairman. Consider ICE Committee conference call w/USACE, MSU Paducah & TVA. Discuss potential draft restrictions under falling river conditions, time frame for L&D 52's pool stabilization & common groundings at MM 925. SOHV CC initiate a SMIB.
	10'5"	Falling	Extreme Low Water	Action	Lockmaster contacts CG MSU Paducah & ICE Committee Chairman. Hold ICE Committee conference call w/USACE, MSU Paducah & TVA. Safety Advisory in effect. Discuss potential draft restrictions under falling river conditions, time frame for L&D 52's pool stabilization, lake releases, & common groundings at MM 925. Note: Vessels' draft must have one foot of clearance over miter sills to enter and exit lock chamber.
	10'0"	Falling	Restrict Lock Operations	Action	Lockmaster contacts CG MSU Paducah & ICE Committee Chairman. Hold ICE Committee call w/USACE, MSU Paducah & TVA. Discuss potential for river closure under falling river conditions. Smithland L&D considers ceasing locking vessels. SMIB in effect.
	9'8" and below	Falling	Restrict Lock Operations	Action	Lockmaster contacts CG MSU Paducah & ICE Committee Chairman. Hold ICE Committee conference call w/USACE, MSU Paducah & TVA. MSU Paducah implements a Safety Zone for extreme low water between MM 918.5 – MM 934.0 OHR. SOHV CC cancels SMIB. Vessels will experience delays.
	9'8" and below	Rising	Restrict Lock Operations	Recovery	Safety Zone in effect. Vessels will experience delays.
	10'0"	Rising	Resume Lock Operations	Recovery	Lockmaster contacts CG MSU Paducah & ICE Committee Chairman. Smithland L&D resumes locking vessels. Hold ICE Committee conference call w/USACE & MSU Paducah to discuss queue management. MSU Paducah cancels Safety Zone & SOHV CC re-issues SMIB.
	10'5"	Rising	Extreme Low Water	Recovery	Lockmaster contacts CG MSU Paducah & ICE Committee Chairman. ICE Committee conference call w/USACE & MSU Paducah to discuss draft and tow size recommendations under rising river conditions. Safety Advisory in effect.
	11'0"	Rising	Low Water	Watch	Lockmaster contacts CG MSU Paducah. SOHV CC cancel SMIB.
	12'0" and above	Rising	Normal Operations	n/a	Lock Operations Normal.

OHIO RIVER – SMITHLAND LOCK & DAM

HIGH WATER Enclosure 1 (example)

Broadcast Notice to Mariners

THE U.S. COAST GUARD CAPTAIN OF THE PORT HAS ESTABLISHED A SAFETY ZONE ON THE OHIO RIVER FROM MILE MARKER 917 TO MILE MARKER 922 IN THE VICINITY OF SMITHLAND LOCK AND DAM. THIS SAFETY ZONE INCLUDES THE CLOSURE OF SMITHLAND LOCK AND DAM DUE TO HIGH WATER WITH THE UPPER GAUGE READING 29.0 FEET. NORTHBOUND VESSELS ARE PROHIBITED FROM NAVIGATION OVER THE WEIR PASS. SOUTHBOUND VESSELS WITH 9'0" DRAFT AND ADEQUATE HORSEPOWER ARE AUTHORIZED NAVIGATION OVER THE WEIR WITH AN ASSIST VESSEL IMMEDIATELY AVAILABLE IN CASE OF EMERGENCY.

4.A. Ohio River Action Plan

4.A.21. Lock & Dam 52 Low Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING UPPER & LOWER GAUGE	TREND	DESCRIPTION	PHASE	ACTION
<p>LOCK & DAM 52</p> <p>OHIO RIVER MM: 939.0</p> <p>REFERENCE GAUGE: L&D 52</p> <p>OTHER USEFUL DATA: WHEN WICKETS ARE RAISED THERE IS AN UPPER AND LOWER GAUGE READING. IDEAL POOL CONDITIONS FOR L&D 52 WHEN WICKETS ARE RAISED: 18.6 ON THE UPPER GAUGE AND 10.0 OR GREATER ON THE LOWER GAUGE. MINIMUM LOCKING ABILITY ON LOWER GAUGE IS 9.0.</p> <p>WICKETS ARE TYPICALLY RAISED WHEN SMITHLAND LOWER GAUGE IS BELOW 12' AND CAIRO GAUGE IS BELOW 26'.</p> <p>ZERO GAUGE'S L&D 52 UPPER - 283.3' L&D 52 LOWER - 273.1'</p> <p>USACE GAUGE READINGS REPORT</p> <p>Lock & Dam 52 #: 618-564-3151</p>	U 16.0	Falling	Normal Operations	Watch	Wicket dam is normally down. Vessels navigating normal river pass and are not required to use lock chamber. There is potential for raising dam. Consider ICE Committee conference call w/USACE, MSU Paducah & CCG Chippewa to discuss potential for raising dam. Evaluate need to reset buoys.
	U 15.5 – 15.0	Falling	Low Water	Watch	Lockmaster contacts CG MSU Paducah and ICE Committee Chairman. L&D 52 Lockmaster considers raising wickets. Vessels may experience delays during this stage. Sector Command Center will initiate a Safety Advisory SMIB.
	U 14.9 L 10.0	Falling	Low Water	Watch	Wickets unable to maintain pool. Lockmaster contacts CG MSU Paducah & ICE Committee Chairman. Hold ICE Committee conf call w/USACE & MSU Paducah. Discuss continued draw down conditions, potential for groundings near Smithland L&D and potential draft restrictions at dam. MSU Paducah issues a BNM IAW Army Corps restriction (Encl. 2). Vessels may experience delays. Note: Vessels draft must have one foot of clearance over miter sills to enter & exit lock chamber.
	U 14.7 and below L 9.0 and below	Falling	Extreme Low Water	Action	Pool is not stabilizing and water levels continue decreasing. Lockmaster contacts CG MSU Paducah & ICE Committee Chairman. Hold ICE Committee Conference call w/USACE & MSU Paducah to discuss emergency situation and potential for Safety Zone (Encl. 1). Vessels will experience delays. Note: Lock chamber may be unable to accommodate commercial vessels.
	U 15.5 L 10.0	Rising	Low Water	Action	Lockmaster contacts CG MSU Paducah & ICE Committee Chairman. L&D 52 resumes locking vessels. Hold ICE Committee conference call w/USACE & MSU Paducah to discuss queue management. MSU Paducah cancels Safety Zone & SOHV CC reissues Safety Advisory or SMIB. USACE draft restrictions may be removed.
	U 15.6 L 12.0	Rising	Low Water	Recovery	Locking vessels. Mariners should consider potential out-drafts. SOHV CC cancels low water SMIB and/or safety advisory.
	U 18.6 L 15.0	Rising	Normal Operations	Recovery	Lockmaster considers lowering all wickets. Locking vessels.
	U 18.8	Rising	Normal Operations	Recovery	Lockmaster contacts CG MSU Paducah & ICE Committee Chairman to alert them to lowering of wickets and river closure.
	U 19.1	Rising	Normal Operations	Recovery	Wicket dam is normally down. Vessels navigating the pass; not required to use lock chamber.

OHIO RIVER –LOCK AND DAM 52

LOW WATER Enclosure 1 (example) Broadcast Notice to Mariners

THE U.S. COAST GUARD CAPTAIN OF THE PORT HAS ESTABLISHED A SAFETY ZONE ON THE OHIO RIVER FROM MILE MARKER _____ TO MILE MARKER _____ EXTENDING THE ENTIRE WIDTH OF THE RIVER DUE TO EXTREME LOW WATER CONDITIONS. COMMERCIAL VESSELS ARE PROHIBITED FROM ENTERING OR TRANSITING IN THIS SAFETY ZONE UNLESS PERMITTED BY THE U.S. COAST GUARD CAPTAIN OF THE PORT. COMMERCIAL VESSELS REQUESTING TO ENTER OR TRANSIT IN THIS SAFETY ZONE MUST CONTACT THE COAST GUARD (MSU PADUCAH, SOHV, OR CG PERSONNEL AT THE LOCK AS THE SITUATION DICTATES) AT XXX-XXX-XXXX.

USACE draft restrictions for L&D 52 - Enclosure 2

MAIN 1200’ CHAMBER DRAFT RESTRICTIONS

Lower Gauge (ft)	Draft in Tenths (ft)	Draft in ft & in
8.5	9.0	9'-0"
8.6	9.1	9'-1.2"
8.7	9.2	9'-2.4"
8.8	9.3	9'-3.6"
8.9	9.4	9'-4.8"
9.0	9.5	9'-6"
9.1	9.6	9'-7.2"
9.2	9.7	9'-8.4"
9.3	9.8	9'-9.6"
9.4	9.9	9'-10.8"
9.5	10.0	10'-0"
9.6	10.1	10'-1.2"
9.7	10.2	10'-2.4"
9.8	10.3	10'-3.6"
9.9	10.4	10'-4.8"

AUXILIARY 600’ CHAMBER DRAFT RESTRICTIONS

Lower Gauge (ft)	Draft in Tenths (ft)	Draft in ft & in
8.0	9.1	9'-1.2"
8.1	9.2	9'-2.4"
8.2	9.3	9'-3.6"
8.3	9.4	9'-4.8"
8.4	9.5	9'-6"
8.5	9.6	9'-7.2"
8.6	9.7	9'-8.4"
8.7	9.8	9'-9.6"
8.8	9.9	9'-10.8"
8.9	10.0	10'-0"
9.0	10.1	10'-1.2"
9.1	10.2	10'-2.4"
9.2	10.3	10'-3.6"
9.3	10.4	10'-4.8"
9.4	10.5	10'-6"
9.5	10.6	10'-7.2"
9.6	10.7	10'-8.4"
9.7	10.8	10'-9.6"
9.8	10.9	10'-10.8"
9.9	11.0	11'-0"

4.A. Ohio River Action Plan

4.A.22. Olmsted High Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING OLMSTED UPPER GAUGE	L&D 53 UPPER GAUGE EQUIVLENT READING	TREND	DESCRIPTION	PHASE	ACTION
<p>OLMSTED LOCK & DAM (INTERIM; DURING CONSTRUCTION)</p> <p>OHIO RIVER MM: 964.4</p> <p>REFERENCE GAUGES: Olmsted, Ohio River at Grand Chain L&D</p> <p>FLOOD STAGE READING: 42'0"</p> <p>OTHER USEFUL DATA: This action table is not the traditional WAP action table. It is intended to provide an overview of underwater navigation hazards at various river stages during construction activities at Olmsted Lock and Dam. Exact actions will vary based on river conditions and construction progress.</p> <p>USACE GAUGE READINGS REPORT</p> <p>Olmsted L&D #: 618-748-6403</p>	24.5'	30.4'	Rising	Top of finished right & left boat abutments start going under water	Watch	USACE advises MSU Paducah & ICE Committee Chairman of planned construction/changes to traffic routing if river forecasted to continue to rise. Evaluate buoy locations; USACE/USCG formulate plan for resetting if traffic shift is expected. MSU Paducah issues BNM reflecting USACE Nav Notice issued by Olmsted.
	27.0'	32.9'	Rising	Traffic starts navigating navigable pass	Watch	Construction work ceases; USACE notifies MSU Paducah & ICE Committee Chairman. Hold ICE Committee conference w/USACE & MSU Paducah as necessary to discuss planned traffic routing or other issues. MSU Paducah issues BNM reflecting USACE Nav Notice issued by Olmsted.
	31.0'	36.9'	Rising	Lock walls start going under water along with unfinished dam piers.	Watch	Hold ICE Committee conference w/USACE & MSU Paducah to discuss planned traffic routing or other issues. MSU Paducah issues BNM reflecting USACE Nav Notice issued by Olmsted.
	36.0'	41.9'	Rising	Top of fixed weir cells on the Kentucky bank start going underwater	Action	Hold ICE Committee conference w/USACE & MSU Paducah to discuss planned traffic routing or other issues. MSU Paducah issues BNM reflecting USACE Nav Notice issued by Olmsted.
	41.0'	46.9'	Rising	Downstream mooring cells and Cat Barge test piles start going underwater	Action	Hold ICE Committee conference w/USACE & MSU Paducah to discuss planned traffic routing or other issues. MSU Paducah issues BNM reflecting USACE Nav Notice issued by Olmsted.

4.A. Ohio River Action Plan

4.A.23. Lock & Dam 53 Low Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING UPPER & LOWER GAUGE	TREND	DESCRIPTION	PHASE	ACTION
<p>LOCK & DAM 53</p> <p>OHIO RIVER MM: 963.0</p> <p>REFERENCE GAUGE: Ohio River at Grand Chain L&D</p> <p>OTHER USEFUL DATA: ONE GAUGE READING EXISTS WHEN WICKETS ARE DOWN. WHEN WICKETS ARE RAISED THERE IS AN UPPER AND LOWER GAUGE READING. IDEAL POOL CONDITIONS FOR LOCK & DAM 53: 16.9 ON THE UPPER GAUGE AND 10.0 ON THE LOWER GAUGE. NAVIGATION OVER THE BEAR TRAPS WILL BE CONSIDERED WHEN THE UPPER GAUGE REACHES 32.0. MINIMUM LOCKING ABILITY ON LOWER GAUGE IS 4.0.</p> <p>ZERO GAUGE'S L&D 53 UPPER - 273.1' L&D 53 LOWER - 273.1' OLMSTED UPPER - 279.0' OLMSTED LOWER - 270.9'</p> <p>USACE GAUGE READINGS REPORT</p> <p>Lock & Dam 53 #: 618-748-6403</p>	U 16.0 – 14.0	Falling	Normal Operations	Watch	Lockmaster contacts MSU Paducah & ICE Committee Chairman to discuss potential for raising wickets. Consider ICE Committee conference call w/USACE & MSU Paducah to discuss potential for continued falling river conditions requiring raising of wickets. Discuss draft restrictions if needed.
	U 13.6 L 10.0	Falling	Low Water	Watch	L&D 53 upper gauge reading leaves inadequate water in L&D 53 pool for normal navigation. Lockmaster contacts MSU Paducah & ICE Committee Chairman to alert them to river closure for raising wickets. Vessels experience delays during this stage. SOHV CC initiates Safety Advisory SMIB for drawdown conditions. Hold ICE Committee conf call w/USACE & MSU Paducah to discuss ops/traffic routing at Olmsted.
	U 13.3 and below L 9.0 and below	Falling	Extreme Low Water	Action	Dam wickets unable to maintain pool for normal navigation. Lockmaster contacts CG MSU Paducah & ICE Committee Chairman. Hold ICE Committee conference call w/USACE & MSU Paducah to assess the need to cease locking of vessels and implementation of a Safety Zone due to extreme low water. Note: Vessels draft must have one foot of clearance over miter sills to enter and exit L&D 53 lock chamber.
	L – 6.9		Historically Low Water	Action	Minimum depth vessels w/ 9' draft can navigate 350' wide pass at Olmsted w/ voluntary 2' safety buffer. Commerce extremely inhibited unless locking through Olmsted.
	U 13.4 L 9.0	Rising	Extreme Low Water	Action	Lockmaster contacts MSU Paducah & ICE Committee Chairman of rising river conditions and no need for safety zone. MSU Paducah cancels Safety Zone, if implemented, and SOHV CC reissues Safety Advisory. Lock chamber may still be unable to accommodate commercial vessels.
	U 13.6 L 10.0	Rising	Low Water	Recovery	Locking vessels at L&D 53. USACE provides current status of Olmsted activities. Coast Guard modifies or cancels Safety Advisories as necessary. Mariners should consider potential out drafts.
	U 16.9 L 11.0	Rising	Normal Operations	Recovery	Locking vessels. Lockmaster considers lowering all wickets
	U 17.0 L 12.0	Rising	Normal Operations	Recovery	Lockmaster contacts CG MSU Paducah & ICE Committee Chairman to alert them to lowering of wickets and river closure.
	U 17.2	Rising	Normal Operations	Recovery	Wicket dam is normally down. Vessels navigating normal river nav pass and are not required to use lock chamber.

4.A. Ohio River Action Plan

4.A.24. Irvin Cobb Bridge Operations

CRITICAL AREA DESCRIPTION	TRIGGER	TREND	DESCRIPTION	PHASE	ACTION
IRVIN COBB BRIDGE OHIO RIVER MM: 937.4 BRIDGE DATA: Horizontal Span Clearance KY side – 700’ /IL side – 500’ Vertical Clearance for both – 91’ at pool OTHER USEFUL DATA: MARINERS SHOULD EXERCISE EXTREME CAUTION WHEN NAVIGATING THESE SPANS AND ENSURE ADEQUATE CLEARANCE OF VESSEL UNDER BRIDGE DURING HIGH WATER CONDITIONS	Locking at 52	Locking at 52	Normal Operations	Watch	Vessels normally run Illinois channel span when L&D 52 is locking.
	Not locking at 52	Not locking at 52	Normal Operations	Watch	Vessels normally run Kentucky channel span when L&D 52 is not locking

4.A. Ohio River Action Plan

4.A.25. I-24 Bridge Operations

CRITICAL AREA DESCRIPTION	TRIGGER	TREND	DESCRIPTION	PHASE	ACTION
I-24 BRIDGE OHIO RIVER MM: 940.9 BRIDGE DATA: Horizontal Span Clearance KY side – 700’ /IL side – 600’ Vertical Clearance KY side – 93.9’/IL side – 74.3’ at pool OTHER USEFUL DATA: MARINERS SHOULD EXERCISE EXTREME CAUTION WHEN NAVIGATING THESE SPANS AND ENSURE ADEQUATE CLEARANCE OF VESSEL UNDER BRIDGE DURING HIGH WATER CONDITIONS.	Locking at 52	Locking at 52	Normal Operations	Watch	Vessels normally run Illinois channel span when L&D 52 is locking. Vertical clearance is 20’ less on Illinois span and may not be adequate to transit high water conditions.
	Not locking at 52	Not locking at 52	Normal Operations	Watch	Vessels normally run Kentucky channel span when L&D 52 is not locking

4.A. Ohio River Action Plan

4.A.26. I.C. Railroad Bridge & Cairo Bridge High Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	PHASE	ACTION
<p>I.C. RAILROAD BRIDGE & CAIRO BRIDGE</p> <p>OHIO RIVER MMs: 977.7 & 980.4</p> <p>REFERENCE GAUGE: Cairo & Ohio River at Grand Chain L&D</p> <p>FLOOD STAGE READING: 40'0"</p> <p>BRIDGE DATA: IC RR Horizontal Span Clearance - 500.5' Cairo Bridge Horizontal Span Clearance Center – 630'/IL span – 780' Vertical Clearance Center – 116' minus Cairo Gauge IL- (Ky Pier 116.4', Il pier 105.3') minus Cairo Gauge</p> <p>OTHER USEFUL DATA: COMPARE GAUGES TO DETERMINE HAZARDOUS CONDITIONS / FLOWS. SIMILAR CONDITIONS EXIST FOR THE CAIRO HIGHWAY BRIDGE AT MM 980.4. UNDER THESE CONDITIONS MARINERS SHOULD NAVIGATE WITH CAUTION WHILE SOUTHBOUND. HIGH CONSEQUENCE ALLISIONS MAY OCCUR IN THIS AREA UNDER HIGH WATER AND HIGH CURRENT CONDITIONS RESULTING IN MARINE CASUALTIES AND VESSEL SINKINGS.</p> <p>BIRDS POINT FLOOD PLAIN OFFICE: 901-544-3401</p> <p>CAIRO GAUGE READING: PHONE #: 901-544-3634</p> <p>USACE GAUGE READINGS REPORT</p>	35'0" & below	Rising	n/a	Operations normal.
	35'0"	Rising & projected to continue rising rapidly	Watch	MSU Paducah contacts ICE Committee chairman to discuss need for Safety Advisory. MSU Paducah may request SOHV CC issue a Safety Advisory SMIB indicating high water in the area causing swift currents and potentials for bridge allisions.
	38'0"	Rising	Watch	MSU Paducah contacts ICE Committee chairman to discuss Safety Advisory & conditions mariners are experiencing. Consider need for HP requirements, tow size restrictions and/or use of assist vessel.
	40'0"	Rising	Action	Safety Advisory in effect. Hold ICE Committee conference call w/MSU Paducah & CGC Chippewa. Consider transit of vessels based on HP, tow size, cargo, and visibility. Conduct outreach w/fleet managers to ensure precautions are being taken in high water stages to prevent break-aways.
	40'0" & above	Rising & projected to continue rising	Action	Hold ICE Committee conference call w/MSU Paducah & USACE water control. Consider need for Safety Zone. Consider transit of vessels based on HP, tow size, cargo, & visibility. Continue fleet manager outreach. Note: At 49' on Cairo gauge, consult Birds Point Floodway Plan. At 56' on Cairo gauge, CG requested on scene.
	39'0"	Falling	Recovery	MSU Paducah cancels Safety Zone if implemented as conditions allow. SOHV CC reissues Safety Advisory SMIB. Hold ICE Committee conf call w/MSU Paducah to discuss falling river stages and need for continued Safety Advisory as well as continued HP requirements or vessel restrictions.
	38'0"	Falling	Recovery	Safety Advisory may still be in effect. Hold ICE Committee conference call w/MSU Paducah to discuss continued need for vessel transits based on HP, tow size, cargo, & visibility.
	35'0"	Falling	Recovery	Continue monitoring river conditions; cancel Safety Advisory SMIB when conditions permit.
	35'0" & below	Falling	Recovery	Operations normal.

4.A. Ohio River Action Plan

4.A.27. Grand Chain & Post Creek Vicinity Low Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING L&D 53 UPPER GAUGE	TREND	DESCRIPTION	PHASE	ACTION
<p>GRAND CHAIN & POST CREEK VICINITY</p> <p>OHIO RIVER MMs: 959.0 – 962.0</p> <p>REFERENCE GAUGE: Ohio River at L&D 53</p> <p>OTHER USEFUL DATA: THIS AREA EXPERIENCES EXCESSIVE SHOALING RESULTING IN VESSEL GROUNDINGS WITHIN THE CHANNEL. DURING LOW WATER OR WHEN ALL L&D 53 WICKETS ARE DOWN, GROUNDINGS MAY INCREASE SIGNIFICANTLY. VESSEL DRAFTS SHOULD BE CAREFULLY WATCHED WHEN TRANSITING THIS AREA. VESSELS MAY REQUIRE LIGHTERING DURING EXTENDED PERIODS OF LOW WATER.</p> <p>ZERO GAUGES L&D 53 UPPER - 273.1' L&D 53 LOWER - 273.1'</p> <p>USACE GAUGE READINGS REPORT</p>	16'0" and above	Falling	Normal Operations	Watch	Operations Normal. USACE, ICE Committee Chairman & MSU Paducah monitor L&D 53 gauge. Mariners report all missing ATON to SOHV CC.
	15'0"	Falling	Low Water	Action	Consider ICE Committee conference call w/USACE, MSU Paducah & CGC Chippewa. Evaluate the need for draft and/or tow sizes restrictions under falling river condition, surveys & dredging and ATON in area. SOHV CC issues Safety Advisory SMIB.
	14'8"	Falling	Low Water	Action	Hold ICE Committee conference call w/USACE, MSU Paducah & CGC Chippewa. Evaluate the need for draft and/or tow sizes restrictions under falling river condition, surveys & dredging and ATON in area. Safety Advisory SMIB in effect.
	14'2"	Falling	Extreme Low Water	Action	Hold ICE Committee conference call w/USACE, MSU Paducah & CGC Chippewa to discuss buoy tender on scene and USACE potential dredging plan.
	13'8"	Falling	Extreme Low Water	Action	Hold ICE Committee conference call w/USACE, MSU Paducah & CGC Chippewa as needed to identify specific critical low water areas and review survey results. Assess need for potential Safety Zone.
	13'5" and below	Falling	Restrict Navigation	Action	Hold ICE Committee conference call w/ MSU Paducah to further discuss need for a Safety Zone due to extreme low water. Vessels will experience delays. Activate MTSRU.
	13'5" and below	Rising	Restrict Navigation	Recovery	Safety Zone may be in effect. Hold ICE Committee conference call w/ MSU Paducah to discuss conditions that need to be met to cancel Safety Zone. Vessels will experience delays.
	13'8"	Rising	Extreme Low Water	Recovery	MSU Paducah cancels Safety Zone if implemented. SOHV CC reissues Safety Advisory SMIB. Hold ICE Committee conference call w/ MSU Paducah to evaluate need for draft and/or tow size restrictions.
	14'2"	Rising	Extreme Low Water	Recovery	Hold ICE Committee conference call w/USACE, MSU Paducah & CGC Chippewa. Evaluate the need for draft and/or tow sizes restrictions under rising river condition, surveys & dredging and ATON in area. Safety Advisory SMIB in effect.
	14'8"	Rising	Low Water	Recovery	Hold ICE Committee conference call w/ MSU Paducah & USACE to discuss need for continued restrictions if implemented and any survey results supporting decision.
	15'0"	Rising	Low Water	Recovery	Continue monitoring river conditions, SOHV CC cancels Safety Advisory SMIB. MSU Paducah requests CGC Chippewa conducts survey of area for missing buoys.
16'0" and above	Rising	Normal Operations	Recovery	Operations Normal.	

4.A. Ohio River Action Plan

4.A.28. American Bar & Mound City Bar Vicinity Low Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING CAIRO GAUGE	TREND	DESCRIPTION	PHASE	ACTION
<p>AMERICA BAR & MOUND CITY BAR VICINITY</p> <p>OHIO RIVER MILE MARKERS: 969.0 – 972.0 & 973.0 – 975.0</p> <p>REFERENCE GAUGE: CAIRO</p> <p>OTHER USEFUL DATA: THIS AREA EXPERIENCES EXCESSIVE SHOALING RESULTING IN VESSEL GROUNDINGS WITHIN THE CHANNEL. DURING LOW WATER OR WHEN ALL L&D 53 WICKETS ARE UP, GROUNDINGS MAY INCREASE IN THIS AREA. VESSEL DRAFTS SHOULD BE CAREFULLY WATCHED WHEN TRANSITING THIS AREA. VESSELS MAY REQUIRE LIGHTERING DURING EXTENDED PERIODS OF LOW WATER. EMERGENCY CONDITIONS EXIST WHEN THE CAIRO GAUGE FALLS BELOW 9'0" FOR AN EXTENDED PERIOD OF TIME.</p> <p>CAIRO GAUGE READING: PHONE #: 901-544-3634</p> <p>USACE GAUGE READINGS REPORT</p>	11'0" and above	Falling	Normal Operations	Watch	Operations Normal. USACE, ICE Committee Chairman & MSU Paducah monitor Cairo Gauge. Mariners report all missing ATON to SOHV CC.
	10'0"	Falling	Low Water	Watch	SOHV CC issues Safety Advisory SMIB.
	9'5"	Falling	Low Water	Watch	Consider ICE Committee conference call w/USACE, MSU Paducah & CGC Chippewa. Evaluate the need for draft and/or tow sizes restrictions under falling river conditions, surveys & dredging and ATON in area. Safety Advisory SMIB in effect.
	9'0"	Falling	Extreme Low Water	Action	Hold ICE Committee conference call w/USACE, MSU Paducah & CGC Chippewa to discuss buoy tender on scene and USACE potential dredging plan.
	8'8"	Falling	Extreme Low Water	Action	Hold ICE Committee conference call w/USACE, MSU Paducah & CGC Chippewa as needed to identify specific critical low water areas and review survey results. Assess need for potential Safety Zone.
	8'3" and below	Falling	Restrict Navigation	Action	Hold ICE Committee conference call w/ MSU Paducah to further discuss need for a Safety Zone due to extreme low water. Vessels will experience delays; activate MTSRU.
	8'3" and below	Rising	Restrict Navigation	Recovery	Safety Zone may be in effect. Hold ICE Committee conference call w/ MSU Paducah to discuss conditions that need to be met to cancel Safety Zone. Vessels will experience delays.
	8'8"	Rising	Extreme Low Water	Recovery	MSU Paducah cancels Safety Zone, if implemented. SOHV CC reissues Safety Advisory SMIB. Hold ICE Committee conference call w/ MSU Paducah to evaluate need for draft and/or tow size restrictions.
	9'0"	Rising	Extreme Low Water	Recovery	CG, Industry chairman, & USACE monitor Cairo Gauge. Hold ICE Committee conference call. Discuss draft and tow size recommendations, if any, under rising river conditions. Safety Advisory in effect.
	9'5"	Rising	Low Water	Recovery	Hold ICE Committee conference call w/USACE, MSU Paducah & CGC Chippewa. Evaluate the need for draft and/or tow sizes restrictions under rising river condition, surveys & dredging and ATON in area. Safety Advisory SMIB in effect.
	10'0"	Rising	Low Water	Recovery	Hold ICE Committee conference call w/ MSU Paducah & USACE to discuss need for continued restrictions, if implemented, and any survey results supporting decision.
	11'0" and above	Rising	Normal Operations	Recovery	Operations Normal. USACE, ICE Committee Chairman & MSU Paducah monitor Cairo Gauge. Mariners report all missing ATON to SOHV CC.

4.B. Mississippi River Action Plan

4.B.1. Chester Highway Bridge High Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p>CHESTER HIGHWAY BRIDGE</p> <p>UPPER MISSISSIPPI RIVER MM: 109.9</p> <p>FLOOD STAGE READING: 27'0"</p> <p>REFERENCE GAUGE: CHESTER GAUGE</p> <p>BRIDGE DATA: HORIZONTAL SPAN CLEARANCE 650' VERTICAL CLEARANCE 103.8' MINUS CHESTER GAUGE</p> <p>OTHER USEFUL DATA: DURING HIGH WATER CONDITIONS VESSELS MAY EXPERIENCE SET WHILE NAVIGATING CHANNEL SPAN OF THE CHESTER HIGHWAY BRIDGE. DURING HIGH CURRENT AND HIGH WATER MARINERS ARE ADVISED TO NAVIGATE THIS AREA AT SLOWEST SAFE SPEED AND EXERCISE EXTREME CAUTION DUE TO POTENTIAL OUTDRAFTS.</p> <p>CAPE GIRARDEAU FLOOD PLAIN OFFICE: 1-573-339-6351 or 573-339-6760 (information on flood walls & pump stations)</p> <p>NOAA GAUGE READINGS REPORT</p>	<12'0"- 18'0"	Rising	Normal Operations	n/a	Operations Normal.
	18'0"	Rising & projected to rise rapidly	Normal Operations	Watch	MSU Paducah contacts RIAC Committee Chairman to discuss overall river conditions & potential for reaching 22'5". Discuss currents, drift, any reports of hazardous conditions & fleeting area concerns/issues and necessity for a full blown call.
	22'5	Rising	High Water	Action	SOHV CC initiates a Safety Advisory SMIB; indicate possibility of swift currents, increased drift, report hazardous conditions and off station buoys or inoperable lights to Coast Guard. Hold RIAC Committee conference call w/MSU Paducah to discuss relative levels at St. Louis, Cape G, & Cairo. Notify levee & fleeting area managers.
	25'0" & above	Rising	High Water 27'-Flood	Action	Safety Advisory in effect. Hold RIAC Committee conference call w/MSU Paducah & USACE to discuss buoys on station, range & bridge lights, drift, expected rise in 24 hours. Discuss levee concerns and possible future actions. Safety Advisory in effect.
	33'0" - 40'0"	Rising	Extreme High Water 35'-Moderate Flood	Action	USACE St. Louis EOC stands up and conducts 2 daily briefs at 33' to discuss potential for rising river stage. If river forecast predicts reaching 43', USACE will initiate discussions w/CG for river closures. Hold RIAC Committee conference call w/MSU Paducah & USACE to discuss tow size restrictions to help reduce wake and mitigate risk, levee integrity as well as address traffic management concerns.
	40'0" - 46'0"	Rising	Extreme High Water 40'-Major Flood	Action	USACE St. Louis EOC deploys flood fight teams at 40' to closely monitor levee conditions and report concerns of wakes on levee design limitations. USACE expects river closure to protect levees at 43' and rising. Hold RIAC conference call w/MSU Paducah & USACE to discuss concerns w/high water & levee integrity. Activate MTSRU to manage vessel traffic/queue.
	25'0"	Falling	Extreme High Water	Action	Safety Advisory in effect. Consider holding RIAC phone conference call. Discuss relative levels at St. Louis, Cape G, & Cairo and impact on vessels/tows.
	22'5"	Falling	High Water	Recovery	Cancel Safety Advisory SMIB. Notify RIAC.
	12'0" - 18'0"	Falling	Normal Operations	n/a	Operations Normal

4.B. Mississippi River Action Plan

4.B.2. Grays Point & Thebes Railroad Bridge High Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p align="center">GRAYS POINT & THEBES RAILROAD BRIDGE</p> <p>UPPER MISSISSIPPI RIVER MM: 43.2</p> <p>FLOOD STAGE READING: 32'0"</p> <p>REFERENCE GAUGE: CAPE GIRARDEAU</p> <p>BRIDGE DATA: HORIZONTAL CHANNEL SPAN CLEARANCE - 651' VERTICAL CLEARANCE – 105.2' MINUS THEBES GAUGE</p> <p>OTHER USEFUL DATA: INDUSTRY BEST PRACTICE IS 240HP PER BARGE. TRANSITS THROUGH BRIDGE ARE ONE WAY ONLY. VESSELS MAY EXPERIENCE SET WHILE NAVIGATING GRAYS POINT AND CHANNEL SPAN OF THE THEBES RAILROAD BRIDGE. DURING HIGH WATER MARINERS ARE ADVISED TO NAVIGATE THIS AREA AT SLOWEST SAFE SPEED AND EXERCISE EXTREME CAUTION DUE TO POTENTIAL OUTDRAFTS.</p> <p>CAPE GIRARDEAU FLOOD PLAIN OFFICE: 1-573-339-6351 or 573-339-6760 (information on flood walls & pump stations)</p> <p>NOAA GAUGE READINGS REPORT</p>	<12'0" – 20'0"	Rising	Normal Operations	n/a	Operations Normal.
	20'0"	Rising & projected to continue rising rapidly	Normal Operations	Watch	MSU Paducah contacts RIAC Committee Chairman to discuss overall river conditions & potential for reaching 25'0". Discuss currents, drift, any reports of hazardous conditions & fleeting area concerns/issues and necessity for full blown call.
	25'	Rising	High Water 27'-Flood	Action	SOHV CC initiates a Safety Advisory SMIB; indicate possibility of swift currents, increased drift, report hazardous conditions and off station buoys or inoperable lights to the Coast Guard. Hold RIAC Committee conference call w/MSU Paducah to discuss buoys, lights, & relative levels at St. Louis, Cape G, & Cairo. Call SOHV WWM to determine buoy tender support if needed. Notify levee & fleeting area managers.
	29'0" & above	Rising	High Water	Action	Hold RIAC Committee conference call w/MSU Paducah. Assess need for daylight/visibility restrictions. Buoys on station, range light operable, bridge lights, drift, expected rise in 24 hours. Contact Cape G Flood Plain Office. Safety Advisory in effect.
	33'0"	Rising	Extreme High Water 35'-Moderate Flood	Action	Hold RIAC Committee conference call w/MSU Paducah & USACE. Assess need for experienced wheelmen w/successful handling in current conditions. Assess down bound nighttime restrictions to tows over 140 feet wide, buoys on station, range light operable, bridge lights, drift. Discuss levee concerns and possible future actions. Safety Advisory in effect.
	38'0" – 42'0"	Rising	Extreme High Water 40'-Major Flood	Action	USACE St. Louis EOC stands up and conducts 2 daily briefs at 38' to discuss potential for rising river stage. If river forecast predicts reaching 45', USACE will initiate discussions w/CG for river closures. Hold RIAC conference call w/MSU Paducah & USACE to discuss tow size restrictions to help reduce wake and mitigate risk, as well as address traffic management concerns.
	42'0" – 48'0"	Rising	Extreme High Water	Action	USACE St. Louis EOC deploys flood fight teams at 42' to closely monitor levee conditions and report concerns of wakes on levee design limitations. USACE expects river closure to protect levees at 45' and rising. Hold RIAC conference call

					w/MSU Paducah & USACE to discuss concerns w/high water & levee integrity. Activate MTSRU to manage vessel traffic/queue.
	29'0"	Falling	High Water	Action	Safety Advisory in effect. Consider holding RIAC Committee conference call w/MSU Paducah. Discuss relative levels at St. Louis, Cape G, & Cairo and impact on vessels/tows.
	25'0"	Falling	High Water	Recovery	Cancel Safety Advisory SMIB. Notify RIAC.
	12'0" - 20'0"	Falling	Normal Operations	n/a	Operations Normal.

4.B. Mississippi River Action Plan

4.B.3. Cairo-Route 60 / 62 Bridge High Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING CAIRO GAUGE	TREND	DESCRIPTION	PHASE	ACTION
<p>CAIRO (ROUTE 60 / 62) BRIDGE</p> <p>UPPER MISSISSIPPI RIVER MM: 1.3</p> <p>FLOOD STAGE READING: 40'0"</p> <p>REFERENCE GAUGE: CAIRO</p> <p>BRIDGE DATA: HORIZONTAL CHANNEL SPAN CLEARANCE - 675' VERTICAL CLEARANCE – 114.2' MINUS CAIRO GAUGE</p> <p>OTHER USEFUL DATA: THE CAPE GIRARDEAU GAUGE CAN BE COMPARED TO THE CAIRO GAUGE TO DETERMINE HAZARDOUS CONDITIONS / FLOWS. SIMILAR CONDITIONS EXIST FOR THE LOWER OHIO RIVER BRIDGES FOR VESSELS TRANSITING DOWNBOUND. UNDER THESE CONDITIONS MARINERS SHOULD NAVIGATE AT SLOWEST SAFE SPEED. HIGH CONSEQUENCE ALLISIONS MAY OCCUR IN THIS AREA UNDER HIGH WATER CONDITIONS RESULTING IN HIGH CONSEQUENCE MARINE CASUALTIES AND VESSEL SINKINGS.</p> <p>BIRDS POINT FLOOD PLAIN OFFICE: 901-544-3401</p> <p>CAIRO GAUGE READING PHONE #: 901-544-3634</p> <p>NOAA GAUGE READINGS REPORT</p>	35'0" & below	Rising	Normal Operations	n/a	Operations normal.
	35'0"	Rising & projected to continue rising rapidly	High Current	Watch	MSU Paducah contacts RIAC Committee Chairman to discuss overall river conditions and need for Safety Advisory SMIB in area.
	38'0"	Rising	High Current	Watch	SOHV CC initiates Safety Advisory SMIB. Fleet managers secure fleeing areas.
	39'0"	Rising	Very High Current	Action	Safety Advisory in effect. Hold RIAC Committee conference call w/MSU Paducah to discuss HP and tow size recommendations and/or use of assist vessel. MSU Paducah contacts fleet managers to determine precautions taken by fleeing area managers.
	40'0" & above	Rising	Very High Current	Action	CG MSU Paducah considers implementation of Safety Zone. Hold RIAC Committee conference call w/MSU Paducah. Consider coordination of vessel traffic on a vessel-by-vessel basis and/or assist vessels. Vessels may experience delays. Fleet managers secure fleeing areas. Note: <u>At 49' on Cairo gauge, consult Birds Point Floodway Plan.</u> At 56' on Cairo gauge, CG requested on scene.
	39'0"	Falling	Very High Current	Recovery	MSU Paducah cancels Safety Zone, if implemented, and SOHV CC reissues Safety Advisory SMIB; indicate swift currents, report hazardous conditions to Coast Guard. Hold RIAC Committee conference call w/MSU Paducah to discuss falling river conditions and need for any vessel restrictions.
	38'0"	Falling	Very High Current	Recovery	Safety Advisory in effect. Consider holding RIAC Committee conference call w/MSU Paducah to discuss overall river conditions and continued need for safety advisory.
	35'0"	Falling	High Current	Recovery	Cancel Safety Advisory SMIB.
	35'0" & below	Falling	Normal Operations	n/a	Operations normal.

4.B. Mississippi River Action Plan

4.B.4. Cairo Point Vicinity Low Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING CAIRO GAUGE	TREND	DESCRIPTION	PHASE	ACTION
<p>CAIRO POINT VICINITY</p> <p>UPPER MISSISSIPPI RIVER MM: 0.3</p> <p>REFERENCE GAUGE: CAIRO</p> <p>OTHER USEFUL DATA: THIS AREA EXPERIENCES EXCESSIVE SHOALING RESULTING IN VESSEL GROUNDINGS WITHIN THE CHANNEL TYPICALLY ALONG THE RIGHT DESCENDING BANK. DURING LOW WATER OR WHEN ALL L&D 53 WICKETS ARE UP, GROUNDINGS MAY INCREASE SIGNIFICANTLY. VESSEL DRAFTS SHOULD BE CAREFULLY WATCHED WHEN TRANSITING THIS AREA DURING LOW WATER CONDITIONS. MARINERS ARE ADVISED TO NAVIGATE THIS AREA WHILE ADHEREING TO THE CENTER OF THE CHANNEL DURING LOW WATER. EMERGENCY CONDITIONS EXIST WHEN THE CAIRO GAUGE FALLS BELOW 9'0" FOR AN EXTENDED PERIOD OF TIME.</p> <p>CAIRO GAUGE READING: PHONE #: 901-544-3634</p> <p>NOAA GAUGE READINGS REPORT</p>	11'0" and above	Falling	Normal Operations	Watch	Operations Normal. USACE, ICE Committee Chairman & MSU Paducah monitor Cairo Gauge. Mariners report all missing ATON to SOHV CC.
	10'0"	Falling	Low Water	Watch	SOHV CC issues Safety Advisory SMIB.
	9'5"	Falling	Low Water	Watch	Consider ICE Committee conference call w/USACE, MSU Paducah & CGC Chippewa. Evaluate the need for draft and/or tow sizes restrictions under falling river condition, surveys & dredging and ATON in area. Safety Advisory SMIB in effect.
	9'0"	Falling	Extreme Low Water	Action	Hold ICE Committee conference call w/USACE, MSU Paducah & CGC Chippewa to discuss buoy tender on scene and USACE potential dredging plan.
	8'8"	Falling	Extreme Low Water	Action	Hold ICE Committee conference call w/USACE, MSU Paducah & CGC Chippewa as needed to identify specific critical low water areas and review survey results. Assess need for potential Safety Zone.
	8'3" and below	Falling	Restrict Navigation	Action	Hold ICE Committee conference call w/ MSU Paducah to further discuss need for a Safety Zone due to extreme low water. Vessels will experience delays; activate MTSRU.
	8'3" and below	Rising	Restrict Navigation	Recovery	Safety Zone may be in effect. Hold ICE Committee conference call w/ MSU Paducah to discuss conditions that need to be met to cancel Safety Zone. Vessels will experience delays.
	8'8"	Rising	Extreme Low Water	Recovery	MSU Paducah cancels Safety Zone if implemented. SOHV CC reissues Safety Advisory SMIB. Hold ICE Committee conference call w/ MSU Paducah to evaluate need for draft and/or tow size restrictions.
	9'0"	Rising	Extreme Low Water	Recovery	CG, Industry chairman, & USACE monitor Cairo gauge. Hold ICE Committee conference call. Discuss draft and tow size recommendations if any under rising river conditions. Safety Advisory in effect.
	9'5"	Rising	Low Water	Recovery	Hold ICE Committee conference call w/USACE, MSU Paducah & CGC Chippewa. Evaluate the need for draft and/or tow sizes restrictions under rising river condition, surveys & dredging and ATON in area. Safety Advisory SMIB in effect.
	10'0"	Rising	Low Water	Recovery	Hold ICE Committee conference call w/ MSU Paducah & USACE to discuss need for continued restrictions if implemented and any survey results supporting decision.

	11'0" and above	Rising	Normal Operations	Recovery	Operations Normal. USACE, ICE Committee Chairman & MSU Paducah monitor Cairo Gauge. Mariners report all missing ATON to SOHV CC.
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4.B. Mississippi River Action Plan

4.B.5. Action Plan Table – Low Water Conditions Upper Mississippi River

CRITICAL REACH DESCRIPTION	THEBES TRIGGER READING	TREND	DEPTH OVER PINNACLES IN THEBES 300' CHANNEL	DESCRIPTION	PHASE	ACTION
<p>UPPER MISSISSIPPI RIVER</p> <p>Miles 0.0 to 109.9</p> <p>Reference Gauge: Thebes Gauge</p> <p>Low Water Reference Plane for Thebes Bridge: 4.8 ft</p>	10'	Falling	18.5'	Normal Operations	Watch	<p>Monitor channel conditions and traffic. Consider initiating communications plan. USACE to plan additional channel reconnaissance surveys and obtain river forecasts. Continue standard methods of survey and communication practices to maintain awareness of channel conditions and known buoy locations. Prioritize dredging, aids to navigation (buoys), and data collection.</p> <p>Realign buoys at Thebes and Grand Tower as a precautionary measure, if necessary.</p>
	5'	Falling	13.5'	Low Water Channel narrows in various conditions	Action	<p>Communications between USACE, USCG and RIAC as needed to discuss problem areas, potential impacts and possible solutions. Reset buoys as needed. Issue advisories to indicate low water between UMR miles 0 to 109.9, and mariners should exercise caution, beware of shifting channels, and transit at slow speed near fleet areas. Consider tow size and draft recommendations in coordination with RIAC (encl. 1).</p> <p>USACE initiates increased channel reconnaissance surveys, monitors potential problem areas, and provides updates on dredging actions. USACE assesses boat ramp availability for survey vessel access. Additional rock encroaches on the channel at multiple locations between MM 38.5 and 46 as well as between MM 79.0 and 81.0 as the river continues to fall. USACE provides most recent survey data to USCG and industry for buoy placement and operational decision making.</p> <p>Industry considers moving deep draft barges out of lower reaches of UMR.</p> <p>Based on river forecast, evaluate need for press release, Joint Information Center, MTSRU, Unified Command/Incident Command Post, vessel reporting scheme, and/or vessel management system. Request inorganic resources if necessary.</p>
	2'	Falling	10.5'	Extreme Low Water Channel continues to narrow and channel depth decreases	Action	<p>Issue advisories (Encl. 2) or establish safety zones (encl. 3), if necessary, to indicate extreme low water between UMR miles 0 and 109.9. Consult with RIAC for one way traffic, draft limits, tow size restrictions, and industry desire for marking channel (wider channel allows larger tow sizes and shallower drafts; at 2.5' on Thebes gauge the 300' wide channel provides 11' of water, which allows 10' drafts w/1' buffer)</p> <p>Adjust buoys throughout UMR, paying particular attention to rock encroaching on channel at Thebes and Grand Tower.</p>

<p>UPPER MISSISSIPPI RIVER</p> <p>Miles 0.0 to 109.9</p>						<p>Reiterate for mariners to be mindful of speed and wake near fleeting areas. Reset buoys as needed throughout UMR. USACE will continue increased channel reconnaissance. Emergency dredging may be required at some locations. Consider press release, Joint Information Center, MTSRU, Unified Command/Incident Command Post, vessel reporting scheme, and/or vessel management system. Continue to assess boat ramps.</p> <p>Industry confirms fuel/water and fleet area/space logistics in the event of prolonged closures/restrictions.</p> <p>***Note: At Thebes gauge 1.5', and Grand Tower gauge 1.0', there is 10' of water over the rocks in the minimum navigation channel within the respective reach. This would allow a 9' draft w/1' buffer.***</p>
	0'	Falling	8.5'	<p>Minimum Navigation</p> <p>In many areas of zone, channel is at best 300-ft wide by 9-ft deep</p>	Action	<p>Establish safety zones (encl. 3) between UMR miles 0 and 109.9 with restrictions if conditions warrant. Fleeting may continue if conditions warrant. Survey, dredge (if possible) and re-buoy critical areas. Monitoring channel conditions and communication between USACE, USCG, RIAC and other affected agencies likely occurs on a daily basis. Consider USCG/USACE/Industry Joint Information Center, Incident Command Post, Marine Transportation System Recovery Unit, and Vessel Management System.</p> <p>Continue to assess boat ramps. Consider ice effects on drafts.</p> <p>Consider any combination of these actions:</p> <ul style="list-style-type: none"> • draft restrictions (Industry should be prepared for a 1-foot under keel safety factor at discretion of COTP with consultation of RIAC, e.g. 8-ft draft restriction in 9-ft channel depth) • restrictions on tow size (equate to dry cargo barge dimensions) • helper boat requirements • daylight only operations <p>Discuss with industry for feedback from mariners that have transited the route recently.</p>
	0'	Rising	8.5'	<p>Minimum Navigation</p> <p>Channel improves and channel depth increases</p>	Recovery	<p>Issue advisories to indicate extreme low water between UMR mile 0 and 109.9. USACE continues channel reconnaissance surveys and identifies/monitors potential problem areas.</p> <p>Continue communications between USACE, USCG and RIAC as needed to discuss specific problem areas, potential impacts and possible solutions.</p>

<p style="text-align: center;">UPPER MISSISSIPPI RIVER</p> <p>Miles 0.0 to 109.9</p>	5'	Rising	13.5'	Low Water Channel returning to normal	Recovery	Continue advisories to indicate low water. Continue to monitor channel conditions for possible repeat of extreme low water. USCG will monitor buoys in narrow channel locations within reach. USACE will continue increased level of channel reconnaissance. Lift advisories as river conditions warrant. Continue communications as needed. Cancel any notices, advisories and safety zones as channel conditions improve. Adjust buoys as possible to provide wider channel.
	8'	Rising	16.5'	Normal Operations	Recovery	Cancel all advisories and commence normal operations. Report any hazardous conditions to USCG.

UPPER MISSISSIPPI RIVER

LOW WATER Enclosure 1 (example) Broadcast Notice to Mariners

THE U.S. COAST GUARD CAPTAIN OF THE PORT OHIO VALLEY HAS ISSUED THIS SAFETY ADVISORY DUE TO LOW WATER CONDITIONS ON THE UPPER MISSISSIPPI RIVER. TOW SIZE RECOMMENDATIONS ARE FOR NO MORE THAN 20 BARGES DOWNBOUND, AND 25 BARGES UPBOUND WITH NO MORE THAN 15 LOADED. IT IS RECOMMENDED THAT TOW CONFIGURATIONS BE LIMITED TO A MAXIMUM OF 5 WIDE BY 6 LONG BASED ON THE STANDARD DIMENSIONS OF A DRY CARGO BARGE. ADDITIONALLY, THE ARMY CORPS OF ENGINEERS REPORTS NUMEROUS ROCK PINNACLES IN THE THEBES AREA BETWEEN MILE 38.5 AND MILE 46 AND GRAND TOWER BETWEEN MILE 79 AND MILE 81. MARINERS ARE REQUESTED TO TRANSIT AT THEIR SLOWEST SAFE SPEED NEAR FLEETING AREAS, AND REPORT MISSING OR OFF STATION BUOYS IMMEDIATELY TO THE SECTOR OHIO VALLEY COMMAND CENTER VIA VHF-FM CHANNEL 16. MARINERS ARE ADVISED TO USE EXTREME CAUTION WHILE TRANSITING THROUGHOUT THE UPPER MISSISSIPPI RIVER, AND BE MINDFUL OF DRAFTS DUE TO CHANGING CONDITIONS.

LOW WATER Enclosure 2 (example)
Broadcast Notice to Mariners

THE U.S. COAST GUARD CAPTAIN OF THE PORT OHIO VALLEY HAS ISSUED THIS SAFETY ADVISORY DUE TO LOW WATER CONDITIONS IN THE UPPER MISSISSIPPI RIVER, AND ROCKS IN THE RIVER IN THE VICINITY OF THEBES AND GRAND TOWER, IL, MILES 38.5 TO 46 UMR, AND MILES 79 TO 81 UMR. THE ARMY CORPS OF ENGINEERS REPORTS NUMEROUS AREAS OF ROCK PINNACLES AND ROCK SHELF IN THESE AREAS. THE COAST GUARD MARKED THESE AREAS WITH BUOYS ON _____. ADDITIONALLY, THE ARMY CORPS OF ENGINEERS REPORTS WHEN THE THEBES GAUGE READS 0.5' THERE IS 9 FEET OF WATER OVER THE ROCKS IN THE NAVIGABLE CHANNEL IN THAT REACH, AND WHEN THE GRAND TOWER GAUGE READS 0.0 THERE IS 9 FEET OF WATER OVER THE ROCKS IN THE NAVIGABLE CHANNEL IN THAT REACH. TOW SIZE RECOMMENDATIONS ARE FOR NO MORE THAN 20 BARGES DOWNBOUND, AND 25 BARGES UPBOUND WITH NO MORE THAN 15 LOADED. IT IS RECOMMENDED THAT TOW CONFIGURATIONS BE LIMITED TO A MAXIMUM OF 5 WIDE BY 6 LONG BASED ON THE STANDARD DIMENSIONS OF A DRY CARGO BARGE. MARINERS ARE REQUESTED TO TRANSIT AT THEIR SLOWEST SAFE SPEED NEAR FLEETING AREAS, AND REPORT MISSING OR OFF STATION BUOYS IMMEDIATELY TO THE SECTOR OHIO VALLEY COMMAND CENTER VIA VHF-FM CHANNEL 16. MARINERS ARE ADVISED TO USE EXTREME CAUTION WHILE TRANSITING THROUGHOUT THE UPPER MISSISSIPPI RIVER, AND BE MINDFUL OF DRAFTS DUE TO CHANGING CONDITIONS.

LOW WATER Enclosure 3 (example)
Broadcast Notice to Mariners

THE U.S. COAST GUARD CAPTAIN OF THE PORT OHIO VALLEY HAS ESTABLISHED A SAFETY ZONE FOR MILES 38.5 TO 46 UMR AND MILES 79 TO 81 UMR. THE ARMY CORPS OF ENGINEERS REPORTS NUMEROUS AREAS OF ROCK PINNACLES AND ROCK SHELF IN THESE AREAS, AND THE COAST GUARD MARKED THESE AREAS WITH BUOYS ON _____. VESSELS AND BARGES ARE REQUIRED TO MAINTAIN A ONE FOOT UNDER KEEL CLEARANCE AT ALL RIVER STAGES, BASED ON U.S. ARMY CORPS OF ENGINEERS REPORTS OF 9 FEET OF WATER IN THE NAVIGABLE CHANNEL BETWEEN MILES 38.5 AND 46 WHEN THEBES GAUGE READS 0.5', AND 9 FEET OF WATER IN THE NAVIGABLE CHANNEL BETWEEN MILES 79 AND 81 WHEN THE GRAND TOWER GAUGE READS 0.0 FEET. ADDITIONALLY, DOWNBOUND TOWS MAY NOT TRANSIT WITH MORE THAN 20 BARGES, AND UPBOUND TOWS MAY NOT TRANSIT WITH MORE THEN 25 BARGES, 15 OF WHICH MAY BE LOADED. TOW CONFIGURATIONS SHALL BE RESTRICTED TO NO MORE THAN 5 WIDE BY 6 LONG. ALL RESTRICTIONS ARE BASED ON THE DIMENSIONS OF A STANDARD DRY CARGO BARGE MEASURING 200 FEET LONG BY 35 FEET WIDE. MARINERS ARE REQUESTED TO TRANSIT AT THEIR SLOWEST SAFE SPEED NEAR FLEETING AREAS, AND REPORT MISSING OR OFF STATION BUOYS IMMEDIATELY TO THE SECTOR OHIO VALLEY COMMAND CENTER VIA VHF-FM CHANNEL 16. MARINERS ARE ADVISED TO USE EXTREME CAUTION WHILE TRANSITING THROUGHOUT THE UPPER MISSISSIPPI RIVER, AND BE MINDFUL OF DRAFTS DUE TO CHANGING CONDITIONS.

4.C. Tennessee River Action Plan

4.C.1. I-24 / 62 / 641 Bridge High Water / Strong Current Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING KENTUCKY L&D FLOW RATE	TREND	TRIGGER CURRENT	DESCRIPTION	PHASE	ACTION
<p>I-24 BRIDGE & 62 / 641 BRIDGE</p> <p>TENNESSEE RIVER MM: 21.1 & 22.4</p> <p>FLOOD STAGE READING: 200 CFS</p> <p>REFERENCE GAUGE: KENTUCKY L&D GIVEN IN THOUSANDS OF (CFS)</p> <p>OTHER USEFUL DATA: TABLE USES FLOW THROUGH CURRENTS ESTIMATED BY KENTUCKY LOCK & DAM. CFS RATES CAN BE USED TO DETERMINE HAZARDOUS CONDITIONS / FLOWS. UNDER THESE CONDITIONS MARINERS SHOULD NAVIGATE AT SLOWEST SAFE SPEED. AREA MAY CONTAIN HIGH CURRENT CAUSING VESSELS TO EXPERIENCE UNEXPECTED SET RESULTING IN ADVERSE CONSEQUENCE.</p> <p>USACE GAUGE READINGS REPORT</p>	140 CFS and below	Rising	4.0 mph	Normal Operations	Watch	Operations Normal. TVA, CG, Industry chairman, & USACE monitor CFS rates.
	160 CFS	Rising & projected to continue rising rapidly	4.2 mph	Normal Operations	Watch	Notify ICE Committee and TCIC.
	180 CFS	Rising	4.4 mph	Strong Current	Watch	Lockmaster contacts MSU Paducah. Sector Command Center (SCC) will initiate Safety Advisory SMIB.
	200 CFS	Rising	4.6 mph	Strong Current	Watch	Safety Advisory in effect. Notify ICE Committee and TCIC. Discuss horsepower and tow size recommendations.
	220 CFS	Rising	4.8 mph	Extreme Strong Current	Action	Safety Advisory in effect. Hold ICE Committee and TCIC conference call. Consider need for assist vessel on stand-by when reaching 220 CFS.
	240 CFS and above	Rising	5.0 mph or greater	Extreme Strong Current	Action	Lockmaster contacts CG MSU Paducah. Safety Advisory in effect. Consider ICE Committee and TCIC meeting. Consider implementation of assist vessel.
	220 CFS	Falling	4.8 mph	Extreme Strong Current	Action	Safety Advisory in effect. Notify ICE Committee and TCIC. Consider need for assist vessel on stand-by when reaching 220 CFS.
	200 CFS	Falling	4.6 mph	Strong Current	Recovery	Safety Advisory in effect. Notify ICE Committee and TCIC. Discuss horsepower and tow size recommendations.
	180 CFS	Falling	4.4 mph	Strong Current	Recovery	Lockmaster contacts CG MSU Paducah. Cancel Safety Advisory SMIB. Notify ICE Committee and TCIC.
	160 CFS	Falling	4.2 mph	Normal Operations	Recovery	Notify ICE Committee and TCIC.
140 CFS and below	Falling	4.0 mph	Normal Operations	Recovery	Operations Normal. TVA, CG, Industry chairman, & USACE monitor CFS rates.	

4.C. Tennessee River Action Plan

4.C.2. Kentucky Lock & Dam Low Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING LOWER GAUGE	TREND	DESCRIPTION	PHASE	ACTION
<p>KENTUCKY LOCK & DAM</p> <p>TENNESSEE RIVER MM: 22.4</p> <p>REFERENCE GAUGE: KENTUCKY L&D LOWER GAUGE</p> <p>OTHER USEFUL DATA: THIS CHART USES THE KENTUCKY LOCK AND DAM LOWER GAUGE. THE GAUGE IS GIVEN IN FEET ABOVE SEA LEVEL. TO DETERMINE DEPTH OVER MITER SILL ADD THE STAFF GAUGE READING + 289 FEET. 289 FEET = THE MITER SILL ELEVATION ABOVE SEA LEVEL. WHEN THE STAFF GAUGE REACHES 11 FEET VESSEL MAY BE RESTRICTED FROM ENTERING LOCK CHAMBER DUE TO LOW WATER.</p> <p>KENTUCKY LOCK #: 270-362-4226</p> <p>USACE GAUGE READINGS REPORT</p>	302' & above 13ft	Falling	Normal Operations	n/a	Lock Operations Normal
	301' 12ft	Falling	Low Water	Watch	Lockmaster contacts CG MSU Paducah & TCIC Committee Chairman. Consider TCIC Committee conference call w/USACE, MSU Paducah & TVA. Discuss potential draft restrictions under falling river conditions. SOHV CC initiates a Safety Advisory SMIB.
	300' 11ft	Falling	Low Water	Watch	Safety Advisory in effect. Lockmaster contacts CG MSU Paducah & TCIC Committee Chairman. Hold TCIC Committee conference call w/USACE, MSU Paducah & TVA to discuss potential draft restrictions due to gauge levels as well as issues at MM 17 due to low water.
	299' 10ft	Falling	Extreme Low Water	Action	Safety Advisory in effect. Lockmaster contacts CG MSU Paducah & TCIC Committee Chairman. Hold TCIC Committee conference call w/USACE, MSU Paducah & TVA to discuss draft and tow size recommendations and limited locking ability based on vessel draft. NOTE: At Kentucky L&D one foot of clearance over the miter sill is required for vessels to enter and exit lock chambers.
	298' 9ft	Falling	Restrict Lock Operations	Action	Lockmaster contacts CG MSU Paducah & TCIC Committee Chairman. Hold TCIC Committee conference call w/USACE, MSU Paducah & TVA to discuss need for Safety Zone on lower TNR. Limited locking ability based on vessel draft. Vessels may experience delays.
	297' and below 8ft	Falling	Restrict Lock Operations	Action	Hold TCIC Committee conference call w/USACE, MSU Paducah & TVA to discuss further consideration for safety zone between TNR MM 0.0 –22.4.
	297' and below 8ft	Rising	Restrict Lock Operations	Recovery	Safety Zone may be in effect. Vessels will experience delays.
	298' 9ft	Rising	Restrict Lock Operations	Recovery	Lockmaster contacts CG MSU Paducah & TCIC Committee Chairman. Hold TCIC Committee conference call w/USACE, MSU Paducah & TVA to discuss queue management and/or vessel restrictions. May still experience limited locking ability based on vessel draft. MSU Paducah may cancel Safety Zone & SOHV CC reissues Safety Advisory SMIB.

	299' 10ft	Rising	Extreme Low Water	Recovery	Lockmaster contacts CG MSU Paducah & TCIC Committee Chairman. Hold TCIC Committee conference call w/USACE, MSU Paducah & TVA to discuss draft and tow size restrictions under rising river conditions. Safety Advisory in effect.
	300' 11ft	Rising	Extreme Low Water	Recovery	Safety Advisory in effect. Vessels exercise caution MM 17.0 TNR.
	301' 12ft	Rising	Low Water	Recovery	Lockmaster contacts MSU Paducah. SOHV CC cancels SMIB.
	302' & above 13ft	Rising	Normal Operations	n/a	Lock Operations Normal.

4.C. Tennessee River Action Plan

4.C.3. Kentucky Lock & Dam High Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING LOWER GAUGE	TREND	DESCRIPTION	PHASE	ACTION
<p>KENTUCKY LOCK & DAM</p> <p>TENNESSEE RIVER MM: 22.4</p> <p>FLOOD STAGE READING: 340'</p> <p>REFERENCE GAUGE: KENTUCKY L&D LOWER GAUGE</p> <p>OTHER USEFUL DATA: THIS CHART USES THE KENTUCKY LOCK AND DAM LOWER GAUGE. THE GAUGE IS GIVEN IN FEET ABOVE SEA LEVEL.</p> <p>ADD THE ACTUAL STAFF GAUGE READING + 289 FEET TO DETERMINE THE GAUGE READING.</p> <p>MONITOR TVA FLOW RATES. REFERENCE PADUCAH GAUGE (335) & KENTUCKY LOCK & DAM LOWER GAUGE (334).</p> <p>USACE GAUGE READINGS REPORT</p> <p>Kentucky Lock #: 270-362-4226</p>	302' 13ft	Rising	Normal Operations	n/a	Locking Operations Normal.
	335'	Rising & projected to continue rising rapidly	High Water	Watch	Lockmaster contacts MSU Paducah & TCIC Committee Chairman. Consider TCIC Committee conference call w/USACE, MSU Paducah & TVA to discuss increasing river stages and flow rates. Mooring cell use will be discontinued at elevation of 336'. SOHV CC releases high water SMIB.
	340'	Rising	Extreme High Water	Action	Safety Advisory in effect. Hold TCIC Committee conference call w/USACE, TVA & MSU Paducah to discuss safety zone, potential ceasing of lockage, vessel restrictions and/or helper boat. Vessels will experience delays.
	341' 1ft height of guard wall remaining	Rising	Restrict Lock Operations	Action	Lockmaster contacts MSU Paducah. Kentucky Lock ceases locking vessels. Safety Advisory in effect.
	341' 1ft height of guard wall remaining	Falling	Resume Locking Ability	Recovery	Lockmaster contacts MSU Paducah & TCIC Chairman. Hold TCIC Committee conference call w/USACE, MSU Paducah to discuss resumption of lockage under falling river conditions to include any vessel restrictions and/or helper boat requirements. SOHV CC reissues Safety Advisory SMIB.
	340'	Falling	Extreme High Water	Recovery	Safety Advisory in effect.
	335'	Falling	High Water	Recovery	Lockmaster contacts MSU Paducah & TCIC Chairman. SOHV CC cancels Safety Advisory SMIB.
	302' 13ft	Falling	High Water	Recovery	Locking Operations Normal.

4.C. Tennessee River Action Plan

4.C.4. The Gorge High Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING Chickamauga L&D	TREND	DESCRIPTION	PHASE	ACTION
<p align="center">THE GORGE</p> <p align="center">TENNESSEE RIVER MILE MARKERS: 446.0 – 454.5</p> <p>OTHER USEFUL DATA: TABLE USES FLOWS THROUGH THE GORGE GIVEN IN THOUSANDS OF CUBIC FEET PER SECOND (CFS). CFS RATES CAN BE USED TO DETERMINE HAZARDOUS CONDITIONS / FLOWS. UNDER THESE CONDITIONS MARINERS SHOULD NAVIGATE AT SLOWEST SAFE SPEED. AREA MAY CONTAIN HIGH CURRENT CAUSING VESSELS TO EXPERIENCE UNEXPECTED SET RESULTING IN ADVERSE CONSEQUENCE.</p> <p><u>TVA GAUGE READINGS REPORT</u></p>	46,000 CFS	Rising	High Current	Watch	Operations normal. CG, TVA, USACE and TCIC chairman monitor CFS rates and begin holding conference calls as needed. The Sector Command Center will initiate a SMIB.
	85,000 CFS	Rising	High Current	Action	Lockmaster contacts the Sector Command Center. The Sector Command Center will initiate a BNM (Enc. 1), recommending commercial traffic transit through the Gorge during daylight hours only. TCIC holds conference call.
	100,000 CFS and above	Rising	Very High Current	Emergency	Lockmaster contacts the Sector Command Center. Chickamauga L&D ceases locking vessels. The Sector Command Center initiates a Safety Zone BNM (Enc. 2), ceasing navigation through the Gorge and cancels BNM (Enc. 1). TCIC holds conference call.
	below 100,000 CFS	Falling	High Current	Action	Lockmaster contacts the Sector Command Center. Chickamauga L&D resumes locking vessels. The Sector Command Center cancels Safety Zone BNM (Enc. 2) and reissues BNM (Enc. 1), recommending commercial traffic transit through the Gorge during daylight hours only. TCIC holds conference call.
	85,000 CFS	Falling	High Current	Action	Lockmaster contacts the Sector Command Center. The Sector Command Center cancels BNM (Enc. 1)
	46,000 CFS	Falling	Normal Operations	Recovery	Operations normal. CG, TVA, USACE and TCIC chairman monitor CFS rates. The Sector Command Center cancels SMIB.

TENNESSEE RIVER – THE GORGE

HIGH WATER Enclosure 1 (example) Broadcast Notice to Mariners (BNM)

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 85,000CFS. 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 85,000 CFS.

HIGH WATER Enclosure 2 (example) Broadcast Notice to Mariners (BNM)

HEAVY RAINFALL HAS CAUSED RELEASES FROM CHICKAMAUGA DAM, TNR MM 471 TO GO ABOVE 100,000 CFS. IAW THE WATERWAY MANAGEMENT PLAN, THE USCG COTP OHIO VALLEY HAS ESTABLISHED A SAFETY ZONE ON THE TNR FROM 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 FLOWS BELOW 100,000 CFS.

4.D. Cumberland River Action Plan

4.D.1. Barkley Lock & Dam Low Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING LOWER GAUGE	TREND	DESCRIPTION	PHASE	ACTION
<p>BARKLEY LOCK & DAM</p> <p>CUMBERLAND RIVER MM: 30.6</p> <p>REFERENCE GAUGE: BARKLEY L&D LOWER GAUGE</p> <p>OTHER USEFUL DATA: THIS CHART USES THE BARKLEY LOCK AND DAM LOWER GAUGE. THE GAUGE IS GIVEN IN FEET ABOVE SEA LEVEL.</p> <p>TO DETERMINE DEPTH OVER MITER SILL ADD THE STAFF GAUGE READING + 289 FEET. 289 FEET = THE MITER SILL ELEVATION ABOVE SEA LEVEL.</p> <p>WHEN THE STAFF GAUGE REACHES 11 FEET VESSEL MAY BE RESTRICTED FROM ENTERING LOCK CHAMBER DUE TO LOW WATER.</p> <p>BARKELY L&D #: 270-362-4222</p> <p>USACE GAUGE READINGS REPORT</p>	302' & above 13' over sill	Falling	Normal Operations	n/a	Lock operations normal.
	301' & 12' over sill	Falling	Low Water	Watch	Lockmaster contacts CG MSU Paducah & TCIC Committee Chairman. Consider TCIC Committee conference call w/USACE, MSU Paducah & TVA. Discuss potential draft restrictions under falling river conditions. SOHV CC initiates a Safety Advisory SMIB.
	300' & 11' over sill	Falling	Low Water	Watch	Safety Advisory in effect. Lockmaster contacts CG MSU Paducah & TCIC Committee Chairman. Hold TCIC Committee conference call w/USACE, MSU Paducah & TVA to discuss potential draft restrictions due to gauge levels. Note: When the staff gauge falls to or below 11' vessels may be restricted from entering the lock chamber based on draft and water level.
	299' & 10' over sill	Falling	Extreme Low Water	Action	Safety Advisory in effect. Lockmaster contacts CG MSU Paducah & TCIC Committee Chairman. Hold TCIC Committee conference call w/USACE, MSU Paducah & TVA to discuss draft and tow size recommendations and limited locking ability based on vessel draft. NOTE: At Barkley L&D one foot of clearance over the miter sill is required for vessels to enter and exit lock chambers.
	298' & 9' over sill	Falling	Restrict Lock Operations	Action	Lockmaster contacts CG MSU Paducah & TCIC Committee Chairman. Hold TCIC Committee conference call w/USACE, MSU Paducah & TVA to discuss need for Safety Zone on lower CMR. Limited locking ability based on vessel draft. Vessels may experience delays.
	297' & 8' over sill	Falling	Restrict Lock Operations	Action	Hold TCIC Committee conference call w/USACE, MSU Paducah & TVA to discuss further consideration for safety zone between MM 00.0 –30.6 CMR.
	297' & 8' over sill	Rising	Restrict Lock Operations	Recovery	Safety Zone may be in effect. Vessels will experience delays.
	298' & 9' over sill	Rising	Restrict Lock Operations	Recovery	Lockmaster contacts CG MSU Paducah & TCIC Committee Chairman. Hold TCIC Committee conference call w/USACE, MSU Paducah & TVA to discuss queue management and/or vessel restrictions. May still experience limited locking ability based on vessel draft. MSU Paducah may cancel Safety Zone & SOHV CC reissues Safety Advisory SMIB.

	299' 10' over sill	Rising	Extreme Low Water	Recovery	Lockmaster contacts CG MSU Paducah & TCIC Committee Chairman. Hold TCIC Committee conference call w/USACE, MSU Paducah & TVA to discuss draft and tow size restrictions under rising river conditions. Safety Advisory in effect.
	300' 11' over sill	Rising	Low Water	Recovery	Safety Advisory in effect. Vessels exercise caution on lower CMR.
	301' 12' over sill	Rising	Low Water	Recovery	Lockmaster contacts MSU Paducah. SOHV CC cancels SMIB.
	302' & above 13' over sill	Rising	Normal Operations	n/a	Lock operations normal.

4.D. Cumberland River Action Plan

4.D.2. Barkley Lock & Dam High Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING LOWER GAUGE	TREND	DESCRIPTION	PHASE	ACTION
<p>BARKLEY LOCK & DAM</p> <p>CUMBERLAND RIVER MM: 30.6</p> <p>REFERENCE GAUGE: BARKLEY L&D LOWER GAUGE</p> <p>FLOOD STAGE READING: 345'</p> <p>OTHER USEFUL DATA: THIS CHART USES THE BARKLEY LOCK AND DAM LOWER GAUGE. THE GAUGE IS GIVEN IN FEET ABOVE SEA LEVEL ADD THE ACTUAL STAFF GAUGE READING + 289 FEET TO DETERMINE THE GAUGE READING. 289 FEET = THE MITER SILL ELEVATION ABOVE SEA LEVEL. MONITOR TVA FLOW RATES. FLOWS FROM CUMBERLAND RIVER INTO THE OHIO RIVER CAN POSE HAZARDOUS CONDITIONS.</p> <p>USACE GAUGE READINGS REPORT</p> <p>BARKLEY L&D #: 270-362-4222</p>	<302'	Rising	Normal Operations	n/a	Locking Operations Normal.
	345'	Rising & projected to continue rising rapidly	High Water	Watch	Lockmaster contacts MSU Paducah & TCIC Committee Chairman. Consider TCIC Committee conference call w/USACE, MSU Paducah & TVA to discuss increasing river stages and flow rates. Mooring cell use will be discontinued at elevation of 336'. SOHV CC releases high water SMIB.
	350'	Rising	Extreme High Water	Watch	Safety Advisory in effect. Hold TCIC Committee conference call w/USACE & MSU Paducah to discuss flow rates & potential for helper boat or daytime restrictions.
	351' 1ft height of guide wall remaining.	Rising	Extreme High Water	Watch	Hold TCIC Committee conference call w/USACE, MSU Paducah & TVA to discuss potential ceasing of lockage, vessel restrictions and/or helper boat. Safety Advisory in effect.
	352' Top of guide wall submerged	Rising	Restrict Lock Operations	Action	Lockmaster contacts MSU Paducah & TCIC Committee Chairman. Hold TCIC Committee conference call w/USACE, MSU Paducah & TVA to discuss ceasing of lockage. MSU Paducah considers implementation of Safety Zone. Vessels will experience delays. Note: At 352 feet on the upper gauge Barkley L&D closes due to debris in the gate gears.
	352' & above	Rising	Restrict Lock Operations	Action	Lockmaster contacts MSU Paducah & TCIC Committee Chairman. Hold TCIC Committee conference call w/USACE, MSU Paducah & TVA to discuss safety zone and lock closure. NOTE: When the upper gauge reaches 374 feet Kentucky L&D closes due to debris in gate gears.
	352' Top of guide wall submerged	Falling	Restrict Lock Operations	Action	Lockmaster contacts MSU Paducah. Kentucky L&D ceases locking vessels. CG MSU Paducah considers cancellation of Safety Zone if implemented.
	351' 1ft height of guide wall remaining.	Falling	Resume Locking Ability	Recovery	Lockmaster contacts MSU Paducah & TCIC Chairman. Hold TCIC Committee conference call w/USACE, MSU Paducah to discuss resumption of lockage under falling river conditions to include any vessel restrictions and/or helper boat requirements. SOHV CC reissues Safety Advisory SMIB.
	350'	Falling	Extreme High Water	Recovery	Safety Advisory in effect.
	345'	Falling	High Water	Recovery	Lockmaster contacts MSU Paducah & TCIC Chairman. SOHV CC cancels Safety Advisory SMIB.
302' 13ft	Falling	Normal Operations	n/a	Locking Operations Normal.	

4.E. Allegheny River Action Plan

4.E.1. Lock 4 Low Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p align="center">LOCK 4</p> <p align="center">ALLEGHENY RIVER MILE MARKER: 24.2</p> <p>FLOOD STAGE READING: 18' UG</p> <p>OTHER USEFUL DATA: NORMAL POOL 10.1' ON UG & 9' LG</p> <p>TABLE USES LOWER GAUGE READINGS TO MONITOR RIVER CONDITIONS. THE POTENTIAL FOR VESSEL GROUNDINGS INCREASES AS THE WATER FALLS.</p> <p>USACE GAUGE READINGS REPORT</p>	>9.8' LG	Falling	Normal Operations/ Flow Conditions	n/a	Locking operations normal
	9.8' - LG	Falling & projected to continue falling rapidly	Low Water/ Low Flow Conditions	Watch	Consider for low water conference calls. MSU Pittsburgh and/or WAP will initiate a phone conference between CG, USACE and WAP. Topics to discuss: water conditions, concerns, future actions, weather forecasts and river stages. Sector Ohio Valley Command Center will initiate a Safety Advisory (Enc. 1).
	9.8'+ LG	Rising	Normal Operations/ Normal Flow Conditions	Recovery	Continue monitoring river conditions and consider canceling Safety Advisory.

ALLEGHENY RIVER – LOCK 4

LOW WATER Enclosure 1 (example) Safety Marine Information Broadcast (Local Safety)

THE U.S. COAST GUARD CAPTAIN OF THE PORT HAS ISSUED THIS SAFETY ADVISORY DUE TO LOW WATER / LOW FLOW CONDITIONS AT DAM FOUR, MILE MARKER 24.2, ALLEGHENY RIVER. THE LOWER GAUGE AT DAM FOUR READS LESS THAN 9.8 FEET. PROCEED WITH CAUTION AND REMAIN IN THE NAVIGABLE CHANNEL DUE TO DECREASING WATER LEVELS. ALL VESSELS MUST MONITOR CHANNEL DEPTHS AND ENSURE THAT ADEQUATE WATER EXISTS FOR THEIR VESSEL DRAFTS. REPORT ALL GROUNDINGS TO THE U.S. COAST GUARD.

4.E. Allegheny River Action Plan
4.E.2. Lock 7 High Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p>LOCK 7</p> <p>ALLEGHENY RIVER MILE MARKER: 45.7</p> <p>FLOOD STAGE READING: 17' UG</p> <p>OTHER USEFUL DATA: NORMAL POOL 9' ON UG & LG</p> <p>TABLE USES UPPER GAUGE READINGS TO MONITOR RIVER CONDITIONS. THE POTENTIAL FOR VESSEL ALLISIONS WITH LOCK AND DAM TENDS TO INCREASE AS WATER RISES AND CURRENTS INCREASE.</p> <p>USACE GAUGE READINGS REPORT</p>	<16' UG	Rising	Normal Operations/ Flow Conditions	n/a	Locking operations normal.
	16'+ UG	Rising & projected to continue rising rapidly	High Water/ High Flow Conditions	Watch	Consider for high water conference calls. MSU Pittsburgh and/or WAP will initiate a phone conference between CG, USACE and WAP. Topics to discuss: water conditions, concerns, future actions, weather forecasts and river stages. Sector Ohio Valley Command Center will initiate a Safety Advisory (Enc. 1). Note: Cease locking at 17' on upper gauge.
	16' UG	Falling	Normal Operations/ Normal Flow Conditions	Recovery	Continue monitoring river conditions and consider canceling Safety Advisory.

ALLEGHENY RIVER – LOCK 7

HIGH WATER Enclosure 1 (example) Broadcast Notice to Mariners

THE U.S. COAST GUARD CAPTAIN OF THE PORT HAS ISSUED THIS SAFETY ADVISORY DUE TO HIGH WATER / HIGH FLOW CONDITIONS AT DAM SEVEN MILE MARKER 45.7 ALLEGHENY RIVER. THE UPPER GAUGE AT DAM SEVEN READS GREATER THAN 16 FEET. FLEETING FACILITIES ARE ADVISED TO (1) REVIEW AND ACT IN ACCORDANCE WITH THEIR WATERFRONT FLEET OPERATIONS GUIDE AND ANY COMPANY CONTINGENCY PLANS. (2) ASSIGN A PERSON TO BE IN CONTINUOUS SURVEILLANCE AND TO OBSERVE THE BARGES IN THE FLEETING FACILITY, (3) DOUBLE-UP THE LINES ON THE HEAD OF THE FLEET AND PROVIDE AN ADEQUATE NUMBER OF SPRING AND BREAST LINES BETWEEN THE DOCK AND THE BARGES IN THE FLEET, AND (4) REVIEW THEIR NEED TO SECURE TOWBOAT ASSISTANCE.

4.F. Monongahela River Action Plan

4.F.1. Braddock Lock and Dam High Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p>BRADDOCK LOCK AND DAM</p> <p>MONONGAHELA RIVER MILE MARKER: 11.3</p> <p>FLOOD STAGE READING: 22' UG</p> <p>OTHER USEFUL DATA: NORMAL POOL 12' ON UG & 16.8' ON LG MAX. DAM OPENING 42' CEASE LOCKING 19' UG</p> <p>TABLE USES UPPER GAUGE AND DAM OPENINGS TO MONITOR RIVER CONDITIONS. THE POTENTIAL FOR VESSEL ALLISIONS WITH LOCK AND DAM TENDS TO INCREASE AS WATER RISES AND CURRENT INCREASES.</p> <p>CAUTIONARY NOTE 1: SEVERE OUTDRAFT DURING HIGH WATER BY TURTLE CREEK ALONG UPPER GUIDE WALL</p> <p>CAUTIONARY NOTE 2: BRIDGE CLEARANCES AT FORT PERRY AROUND MM 11.6 RESTRICTED DURING HIGH WATER.</p> <p>USACE GAUGE READINGS REPORT</p>	<15' DAM OPENING	Rising	Normal Operations/ Flow Conditions	n/a	Locking operations normal.
	15'+ DAM OPENING	Rising & projected to continue rising rapidly	High Water/ High Flow Conditions	Watch	Consider for high water conference calls. MSU Pittsburgh and/or WAP will initiate a phone conference between CG, USACE and WAP. Topics to discuss: water conditions, concerns, future actions, weather forecasts and river stages. MSU Pittsburgh will submit a Safety Advisory request to the Sector Command Center (SCC). The SCC will initiate a Safety Advisory (Enc. 1).
	15' - DAM OPENING	Falling	Normal Operations/ Normal Flow Conditions	Recovery	Continue monitoring river conditions and consider canceling Safety Advisory.
	<12.5' UG	Rising	Normal Operations/ Flow Conditions	n/a	Locking operations normal.
	12.5'+ UG	Rising & projected to continue rising rapidly	High Water/ High Flow Conditions	Watch	Consider for high water conference calls. MSU Pittsburgh and/or WAP will initiate a phone conference between CG, USACE and WAPI. Topics to discuss: water conditions, concerns, future actions, weather forecasts and river stages. MSU Pittsburgh will submit a Safety Advisory request to the Sector Command Center (SCC). The SCC will initiate a Safety Advisory (Enc. 2).
	12.5' - UG	Falling	Normal Operations/ Normal Flow Conditions	Recovery	Continue monitoring river conditions and consider canceling Safety Advisory.

MONONGAHELA RIVER – BRADDOCK LOCK AND DAM

HIGH WATER Enclosure 1 (example)

Broadcast Notice to Mariners

THE U.S. COAST GUARD CAPTAIN OF THE PORT HAS ISSUED THIS SAFETY ADVISORY DUE TO HIGH WATER / HIGH FLOW CONDITIONS AT BRADDOCK DAM, MILE MARKER 11.3, MONONGAHELA RIVER. THE GATE OPENING IS READING GREATER THAN 15 FEET. EXERCISE CAUTION WHILE TRANSITING UNDER THE MCKEESPORT-DUQUESNE HIGHWAY BRIDGE MILE MARKER 14.0 AND THE UNION RAILROAD BRIDGE MILE MARKER 14.2 DUE TO THE NARROW CHANNEL IN THAT AREA AND THE SHORT DISTANCE BETWEEN THESE TWO BRIDGES.

HIGH WATER Enclosure 2 (example)

Broadcast Notice to Mariners

THE U.S. COAST GUARD CAPTAIN OF THE PORT HAS ISSUED THIS SAFETY ADVISORY DUE TO HIGH WATER / HIGH FLOW CONDITIONS AT BRADDOCK DAM MILE MARKER 11.3 MONONGAHELA RIVER. THE UPPER GAUGE AT BRADDOCK DAM READS GREATER THAN 12.5 FEET. EXERCISE CAUTION AND ENSURE VERTICAL CLEARANCE IS SUFFICIENT WHILE TRANSITING UNDER THE NORFOLK AND SOUTHERN BRIDGE MILE MARKER 11.7. WHEN THE UPPER GAUGE AT BRADDOCK DAM IS 12.5 FEET, THE VERTICAL CLEARANCE UNDER THIS BRIDGE IS 42.5 FEET.

4.F. Monongahela River Action Plan

4.F.2. Lock and Dam 4 High/Low Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p>LOCK AND DAM 4</p> <p>MONONGAHELA RIVER MILE MARKER: 41.5</p> <p>FLOOD STAGE READING: 28' LG</p> <p>OTHER USEFUL DATA: NORMAL POOL 10.5' ON UG & 10' ON LG MAX. DAM OPENING 80' CEASE LOCKING 12.5' UG</p> <p>TABLE USES UPPER AND LOWER GAUGE READINGS AND DAM OPENINGS TO MONITOR RIVER CONDITIONS. THE POTENTIAL FOR VESSEL ALLISIONS WITH LOCK AND DAM TENDS TO INCREASE AS WATER RISES AND CURRENT INCREASES.</p> <p>USACE GAUGE READINGS REPORT</p>	<8' DAM OPENING	Rising	Normal Operations/ Flow Conditions	n/a	Locking operations normal.
	8'+ DAM OPENING	Rising & projected to continue rising rapidly	High Water/ High Flow Conditions	Watch	Consider for high water conference calls. MSU Pittsburgh and/or WAPI will initiate a phone conference between CG, USACE and WAPI. Topics to discuss: water conditions, concerns, future actions, weather forecasts and river stages. MSU Pittsburgh will submit a Safety Advisory request to the Sector Command Center (SCC). The SCC will initiate a Safety Advisory (Enc. 1).
	35'+ DAM OPENING	Rising & projected to continue rising rapidly	Extreme High Water/Extreme High Flow Conditions	Action	Continue monitoring river conditions and cancel Safety Advisory (Enc. 1). Issue Safety Advisory (Enc. 2).
	35'- DAM OPENING	Falling	High Water/ High Flow Conditions	Watch	Continue monitoring river conditions and consider canceling Safety Advisories.
	8' - DAM OPENING	Falling	Normal Operations/ Flow Conditions	Recovery	Locking operations normal.
	9.5' LG	Falling	Normal Operations/ Flow Conditions	n/a	Locking operations normal.
	9.5' - LG	Falling & projected to continue falling rapidly	Low Water/ Low Flow Conditions	Watch	Consider for low water conference calls. MSU Pittsburgh and/or WAPI will initiate a phone conference between CG, USACE and WAPI. Topics to discuss: water conditions, concerns, future actions, weather forecasts and river stages. MSU Pittsburgh will submit a Safety Advisory request to the Sector Command Center (SCC). The SCC will initiate a Safety Advisory (Enc. 3).
	9.5' + LG	Rising	Normal Operations/ Normal Flow Conditions	Recovery	Continue monitoring river conditions and consider canceling Safety Advisory (Enc. 3).

MONONGAHELA RIVER – LOCK 4

HIGH WATER Enclosure 1 (example)

Broadcast Notice to Mariners

THE U.S. COAST GUARD CAPTAIN OF THE PORT HAS ISSUED THIS SAFETY ADVISORY DUE TO HIGH WATER / HIGH FLOW CONDITIONS AT LOCK AND DAM 4, MILE MARKER 41.5 MONONGAHELA RIVER. THE GATE OPENING IS READING GREATER THAN 8 FEET. EXERCISE CAUTION WHILE DOUBLE LOCKING THROUGH LOCK 4.

HIGH WATER Enclosure 2 (example)

Broadcast Notice to Mariners

THE U.S. COAST GUARD CAPTAIN OF THE PORT HAS ISSUED THIS SAFETY ADVISORY DUE TO HIGH WATER / HIGH FLOW CONDITIONS AT LOCK AND DAM 4 MILE MARKER 41.5 MONONGAHELA RIVER. THE GATE OPENING IS READING GREATER THAN 35 FEET. EXERCISE CAUTION WHILE TRANSITING THROUGH LOCK 4. EXERCISE CAUTION WHILE TRANSITING THROUGH THE AREA BETWEEN GREENFIELD BEND MILE MARKER 50 AND MAXWELL DAM MILE MARKER 61.2.

LOW WATER Enclosure 3 (example)

Broadcast Notice to Mariners (NOTE: This BNM can be changed to reflect actual conditions and draft limitations)

THE U.S. COAST GUARD CAPTAIN OF THE PORT HAS ISSUED THIS SAFETY ADVISORY DUE TO LOW WATER / LOW FLOW CONDITIONS AT LOCK AND DAM 4, MILE MARKER 41.5, MONONGAHELA RIVER. THE LOWER GAUGE READS LESS THAN 9.5 FEET (**NOTE: The lower gauge reading may change to reflect actual conditions**). PROCEED WITH CAUTION AND REMAIN IN THE NAVIGABLE CHANNEL DUE TO DECREASING WATER LEVELS. ALL VESSELS MUST MONITOR CHANNEL DEPTHS AND ENSURE ADEQUATE WATER EXISTS FOR THEIR VESSEL DRAFTS. VESSEL DRAFTS SHOULD NOT EXCEED ____ FEET (**NOTE: Draft limitations will depend on the conditions**). REPORT ALL GROUNDINGS TO THE U.S. COAST GUARD.

4.F. Monongahela River Action Plan

4.F.3. Maxwell Lock and Dam High Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p>MAXWELL LOCK AND DAM</p> <p>MONONGAHELA RIVER MILE MARKER: 61.0</p> <p>FLOOD STAGE READING: 12' UG 31' LG</p> <p>OTHER USEFUL DATA: NORMAL POOL 9' ON UG & LG CEASE LOCKING 31' LG MAX. DAM OPENING 110'</p> <p>TABLE USES UPPER GAUGE TO MONITOR RIVER CONDITIONS. THE POTENTIAL FOR VESSEL ALLISIONS WITH LOCK AND DAM TENDS TO INCREASE AS WATER RISES AND CURRENT INCREASES.</p> <p>USACE GAUGE READINGS REPORT</p>	<15' DAM OPENING	Rising	Normal Operations/ Flow Conditions	n/a	Locking operations normal.
	15'+ DAM OPENING	Rising & projected to continue rising rapidly	High Water/ High Flow Conditions	Watch	Consider for high water conference calls. MSU Pittsburgh and/or WAPI will initiate a phone conference between CG, USACE and WAPI. Topics to discuss: water conditions, concerns, future actions, weather forecasts and river stages. MSU Pittsburgh will submit a Safety Advisory request to the Sector Command Center (SCC). The SCC will initiate a Safety Advisory (Enc. 1).
	15' - DAM OPENING	Falling	Normal Operations/ Normal Flow Conditions	Recovery	Continue monitoring river conditions and consider canceling Safety Advisory (Enc. 1).

MONONGAHELA RIVER – MAXWELL LOCK AND DAM

HIGH WATER Enclosure 1 (example) Broadcast Notice to Mariners

THE U.S. COAST GUARD CAPTAIN OF THE PORT HAS ISSUED THIS SAFETY ADVISORY DUE TO HIGH WATER / HIGH FLOW CONDITIONS AT MAXWELL DAM, MILE MARKER 61.2, MONONGAHELA RIVER. THE GATE OPENING IS GREATER THAN 15 FEET. EXERCISE CAUTION WHILE TRANSITING THROUGH THE AREA BETWEEN GATES LIGHT MILE MARKER 76.1 AND GRAYS LANDING DAM MILE MARKER 82.

4.F. Monongahela River Action Plan

4.F.4. Grays Landing Lock and Dam High Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p>GRAYS LANDING LOCK AND DAM</p> <p>MONONGAHELA RIVER MILE MARKER: 82</p> <p>FLOOD STAGE READING: 17' UG</p> <p>OTHER USEFUL DATA: NORMAL POOL 9' ON UG & LG CEASE LOCKING 17' UG</p> <p>TABLE USES UPPER GAUGE TO MONITOR RIVER CONDITIONS. THE POTENTIAL FOR VESSEL COLLISIONS WITH LOCK AND DAM TENDS TO INCREASE AS WATER RISES AND CURRENT INCREASES.</p> <p>CAUTIONARY NOTE 1: WHEN WATER LEVELS ARE EXPECTED TO REACH OR EXCEED 21' UG, ALL GATES ARE TIED BACK SO THAT WATER CAN FLOW FREELY</p> <p>USACE GAUGE READINGS REPORT</p>	<15' UG	Rising	Normal Operations/ Flow Conditions	n/a	Locking operations normal.
	15' + UG	Rising & projected to continue rising rapidly	High Water/ High Flow Conditions	Watch	Consider for high water conference calls. MSU Pittsburgh and/or WAPI will initiate a phone conference between CG, USACE and WAPI. Topics to discuss: water conditions, concerns, future actions, weather forecasts and river stages. MSU Pittsburgh will submit a Safety Advisory request to the Sector Command Center (SCC). The SCC will initiate a Safety Advisory (Enc. 1).
	15'- UG	Falling	Normal Operations/ Normal Flow Conditions	Recovery	Continue monitoring river conditions and consider canceling Safety Advisory.

MONONGAHELA RIVER – GRAYS LANDING

HIGH WATER Enclosure 1 (example) Broadcast Notice to Mariners

THE U.S. COAST GUARD CAPTAIN OF THE PORT HAS ISSUED THIS SAFETY ADVISORY DUE TO HIGH WATER / HIGH FLOW CONDITIONS AT GRAYS LANDING DAM MILE MARKER 82.0 MONONGAHELA RIVER. THE UPPER GAUGE AT GRAYS LANDING DAM READS GREATER THAN 15 FEET. FLEETING FACILITIES ARE ADVISED TO (1) REVIEW AND ACT IN ACCORDANCE WITH THEIR WATERFRONT FLEET OPERATIONS GUIDE AND ANY COMPANY CONTINGENCY PLANS, (2) ASSIGN A PERSON TO BE IN CONTINUOUS SURVEILLANCE AND TO OBSERVE THE BARGES IN THE FLEETING FACILITY, (3) DOUBLE-UP LINES ON THE HEAD OF THE FLEET AND PROVIDE AN ADEQUATE NUMBER OF SPRING AND BREAST LINES BETWEEN THE DOCK AND THE BARGES IN THE FLEET, AND (4) REVIEW THEIR NEED TO SECURE TOWBOAT ASSISTANCE.

4.F. Monongahela River Action Plan

4.F.5. Point Marion Lock and Dam High Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p>POINT MARION LOCK AND DAM</p> <p>MONONGAHELA RIVER MILE MARKER: 90.8</p> <p>FLOOD STAGE READING: 29' LG</p> <p>OTHER USEFUL DATA: NORMAL POOL 9' ON UG & LG CEASE LOCKING 11' UG MAX. DAM OPENING 33'</p> <p>TABLE USES UPPER GAUGE TO MONITOR RIVER CONDITIONS. THE POTENTIAL FOR VESSEL COLLISIONS WITH LOCK AND DAM TENDS TO INCREASE AS WATER RISES AND CURRENT INCREASES.</p> <p>USACE GAUGE READINGS REPORT</p>	<20' DAM OPENING	Rising	Normal Operations/ Flow Conditions	n/a	Locking operations normal.
	20'+ DAM OPENING	Rising & projected to continue rising rapidly	High Water/ High Flow Conditions	Watch	Consider for high water conference calls. MSU Pittsburgh and/or WAPI will initiate a phone conference between CG, USACE and WAPI. Topics to discuss: water conditions, concerns, future actions, weather forecasts and river stages. MSU Pittsburgh will submit a Safety Advisory request to the Sector Command Center (SCC). The SCC will initiate a Safety Advisory (Enc. 1).
	20' - DAM OPENING	Falling	Normal Operations/ Normal Flow Conditions	Recovery	Continue monitoring river conditions and consider canceling Safety Advisory.

MONONGAHELA RIVER – Point Marion

HIGH WATER Enclosure 1 (example) Broadcast Notice to Mariners

THE U.S. COAST GUARD CAPTAIN OF THE PORT HAS ISSUED THIS SAFETY ADVISORY DUE TO HIGH WATER / HIGH FLOW CONDITIONS AT POINT MARION DAM, MILE MARKER 90.8, MONONGAHELA RIVER. THE GATE OPENING AT POINT MARION DAM READS GREATER THAN 20 FEET. EXERCISE CAUTION WHEN TRANSITING THROUGH COBURN BEND BETWEEN MILE MARKERS 93 TO 95.

4.G. Kanawha River Action Plan

4.G.1. Winfield Lock and Dam High Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p>WINFIELD LOCK & DAM</p> <p>KANAWHA RIVER MILE MARKER: 31.1</p> <p>FLOOD STAGE READING: 46' LG Reference: WINFIELD DAM</p> <p>OTHER USEFUL DATA: MAX OPENING 110' GATES ALL OUT 35.5' LG CEASE LOCKING 39.8' LG</p> <p>TABLE USES DAM OPENING. THE POTENTIAL FOR VESSEL ALLISIONS WITH WINFIELD L&D TENDS TO INCREASE AS WATER RISES AND CURRENT INCREASES. VESSELS EXPERIENCE OUTDRAFT WHILE APPROACHING LOCK DOWNBOUND. MARINERS ARE ADVISED TO EXERCISE EXTREME CAUTION, ENTER CHAMBERS AT SLOWEST SAFE SPEED, AND PREPARE FOR POTENTIAL OUTDRAFTS.</p> <p>CAUTIONARY NOTE 1: DRIFT TENDS TO ACCUMULATE IN THE UPPER APPROACH.</p> <p>CAUTIONARY NOTE 2: OUTDRAFT IS SEVERE AT APPROXIMATELY 30' OF GATE OPENING.</p> <p>USACE GAUGE READINGS REPORT</p>	<25'	Rising	Normal Operations/ Flow Conditions	n/a	Locking operations normal.
	25'+	Rising & projected to continue rising rapidly	High Water/ High Flow Conditions	Watch	Consider for up river high water conference calls. MSU Huntington and/or HDWA will initiate a phone conference between CG, USACE and HDWA. Topics to discuss: water conditions, concerns, future actions, weather forecasts and river stages. The SCC will initiate a Safety Advisory SMIB.
	40'	Rising	Extreme High Water/ Extreme High Flow Conditions	Action	MSU Huntington and/or HDWA will initiate a phone conference between CG, USACE and HDWA. Factors to evaluate include rate of rise, amount of drift, presence of ice, and weather conditions. In extreme ice conditions consider providing local Pilot knowledge of river characteristics.
	40'-	Falling	High Water/ High Flow Conditions	Action	Continue conference calls, monitor conditions, and adjust restrictions as appropriate.
	25'-	Falling	Normal Operations / Normal Flow Conditions	Recovery	Continue monitoring river conditions and cancel Safety Advisory SMIB.

4.G. Kanawha River Action Plan

4.G.2. Marmet Lock and Dam High Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p>MARMET LOCK & DAM</p> <p>KANAWHA RIVER MILE MARKER: 67.7</p> <p>FLOOD STAGE READING: 43' LG Reference: MARMET DAM</p> <p>OTHER USEFUL DATA: MAX OPENING 85' GATES ALL OUT 31' LG CEASE LOCKING 34' LG</p> <p>TABLE USES DAM OPENING. THE POTENTIAL FOR VESSEL ALLISIONS WITH MARMET L&D TENDS TO INCREASE AS WATER RISES AND CURRENT INCREASES. VESSELS EXPERIENCE OUTDRAFT WHILE APPROACHING LOCK DOWNBOUND. MARINERS ARE ADVISED TO EXERCISE EXTREME CAUTION, ENTER CHAMBERS AT SLOWEST SAFE SPEED, AND PREPARE FOR POTENTIAL OUTDRAFTS.</p> <p>CAUTIONARY NOTE 1: DRIFT TENDS TO ACCUMULATE IN THE UPPER APPROACH.</p> <p>CAUTIONARY NOTE 2: OUTDRAFT IS SEVERE AT APPROXIMATELY 20' OF GATE OPENING.</p> <p>CAUTIONARY NOTE 3: NEW LOCK CHAMBER UNDER CONSTRUCTION LANDWARD OF PRESENT CHAMBERS.</p> <p>USACE GAUGE READINGS REPORT</p>	<15.'	Rising	Normal Operations/ Flow Conditions	n/a	Locking operations normal.
	15.'+	Rising & projected to continue rising rapidly	High Water/ High Flow Conditions	Watch	Consider for up river high water conference calls. MSU Huntington and/or HDWA will initiate a phone conference between CG, USACE and HDWA. Topics to discuss: water conditions, concerns, future actions, weather forecasts and river stages. The SCC will initiate a SMIB.
	30.'	Rising	Extreme High Water/ Extreme High Flow Conditions	Action	MSU Huntington and/or HDWA will initiate a phone conference between CG, USACE and HDWA. Factors to evaluate include rate of rise, amount of drift, presence of ice, and weather conditions. In extreme ice conditions consider providing local Pilot knowledge of river characteristics.
	30.'-	Falling	High Water/ High Flow Conditions	Action	Continue conference calls, monitor conditions, and adjust restrictions as appropriate.
	15.'-	Falling	Normal Operations / Normal Flow Conditions	Recovery	Continue monitoring river conditions and cancel SMIB.

4.G. Kanawha River Action Plan

4.G.3. London Lock and Dam High Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p>LONDON LOCK & DAM KANAWHA RIVER MILE MARKER: 82.8</p> <p>FLOOD STAGE READING: 43' LG Reference: LONDON DAM</p> <p>OTHER USEFUL DATA: MAX OPENING 85' GATES ALL OUT 33' LG CEASE LOCKING 33' LG</p> <p>THE POTENTIAL FOR VESSEL ALLISIONS WITH LONDON L&D TENDS TO INCREASE AS WATER RISES AND CURRENT INCREASES. VESSELS EXPERIENCE OUTDRAFT WHILE APPROACHING LOCK DOWNBOUND. MARINERS ARE ADVISED TO EXERCISE EXTREME CAUTION, ENTER CHAMBERS AT SLOWEST SAFE SPEED, AND PREPARE FOR POTENTIAL OUTDRAFTS.</p> <p>CAUTIONARY NOTE 1: DRIFT TENDS TO ACCUMULATE IN THE UPPER APPROACH.</p> <p>CAUTIONARY NOTE 2: OUTDRAFT IS SEVERE AT APPROXIMATELY 10' OF GATE OPENING.</p> <p>CAUTIONARY NOTE 3: DUE TO TOPOGRAPY, POOL LEVELS CAN RISE RAPIDLY.</p> <p>USACE GAUGE READINGS REPORT</p>	<15' DAM OPENING	Rising	Normal Operations/ Flow Conditions	n/a	Locking operations normal.
	15'+ DAM OPENING	Rising & projected to continue rising rapidly	High Water/ High Flow Conditions	Watch	Participate in river high water conference calls. MSU Huntington and/or HDWA will initiate a phone conference between CG, USACE and HDWA. Topics to discuss: water conditions, concerns, future actions, weather forecasts and river stages. The SCC will initiate a Safety Advisory SMIB.
	30' DAM OPENING	Rising	Extreme High Water/ Extreme High Flow Conditions	Action	MSU Huntington and/or HDWA will initiate a phone conference between CG, USACE and HDWA. Factors to evaluate include rate of rise, amount of drift, presence of ice, and weather conditions. In extreme ice conditions consider providing local Pilot knowledge of river characteristics.
	30'- DAM OPENING	Falling	High Water/ High Flow Conditions	Action	Continue conference calls, monitor conditions, and adjust restrictions as appropriate.
	15'- DAM OPENING	Falling	Normal Operations / Normal Flow Conditions	Recovery	Continue monitoring river conditions and cancel Safety Advisory SMIB.

4.H. Green River Action Plan

4.H.1. Spottsville RR Bridge High Current Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p>Spottsville RR Bridge</p> <p>GREEN RIVER MILE MARKER: 8.3</p> <p>Reference: Lock 1 LG & Newburgh L&D LG (Ohio River)</p> <p>OTHER USEFUL DATA:</p> <p>THE POTENTIAL FOR VESSEL COLLISIONS WITH SPOTTSVILLE RAILROAD BRIDGE ABUTMENTS TENDS TO INCREASE AS CURRENT INCREASES, SPECIFICALLY WHEN LOCK 1 LG (GREEN RIVER) IS TWO FEET OR HIGHER THAN NEWBURGH L&D LG (OHIO RIVER). VESSELS EXPERIENCE OUTDRAFT WHILE TRANSITING THE BRIDGE DOWNBOUND. MARINERS ARE ADVISED TO EXERCISE EXTREME CAUTION, PASS THE BRIDGE AT SLOWEST SAFE SPEED AND PREPARE FOR POTENTIAL OUTDRAFTS.</p>	Lock 1 LG is < 1' higher than Newburgh L&D LG	Green River rising	Normal Operations / Flow Conditions	n/a	Navigation operations normal.
	Lock 1 LG is > 1' higher than Newburgh L&D LG	Rising & difference between Green & Ohio River levels increasing	High Flow Conditions	Watch	The Sector CC will initiate a Safety Advisory SMIB.
	Lock 1 LG is > 2' higher than Newburgh L&D LG	Green River levels 2' or higher than Ohio River levels.	High Flow Conditions	Action	Sector Ohio Valley and/or CORMIG will initiate a phone conference between CG, USACE and CORMIG. Factors to evaluate include rates of rise on Green and Ohio Rivers and weather conditions. Consider vessel restrictions including minimum horsepower per loaded barge, tow size limits or daylight operations. Consider establishing safety zone. Update safety advisory to reflect controls.
	Lock 1 LG is < 2' but >1' higher than Newburgh L&D LG	Difference between Green and Ohio River levels decreasing	High Flow Conditions	Watch	USACE, CG and/or CORMIG will initiate a phone conference. Factors to evaluate include river heights and weather conditions. Consider removing safety zone. Update safety advisory as appropriate.
	Lock 1 LG is < 1' higher than Newburgh L&D LG	Difference between Green and Ohio River levels decreasing	Normal Operations / Flow Conditions	n/a	Cancel safety zone if applicable. Cancel safety advisory SMIB. Navigation operations normal.

4.H. Green River Action Plan

4.H.2. Lock & Dam 1 High Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p>Lock 1</p> <p>GREEN RIVER MILE MARKER: 9.1</p> <p>Reference: Lock 1 UG & LG</p> <p>OTHER USEFUL DATA: CEASE LOCKING 25.9' UG</p> <p>THE POTENTIAL FOR VESSEL ALLISIONS WITH L&D 1 TENDS TO INCREASE AS WATER RISES AND CURRENT INCREASES, SPECIFICALLY BETWEEN 16' AND 19' ON THE UPPER GAUGE. VESSELS EXPERIENCE OUTDRAFT WHILE APPROACHING LOCK DOWNBOUND. MARINERS ARE ADVISED TO EXERCISE EXTREME CAUTION, ENTER CHAMBER AT SLOWEST SAFE SPEED, AND PREPARE FOR POTENTIAL OUTDRAFTS.</p>	<13' Upper Gauge	Rising	Normal Operations / Flow Conditions	n/a	Locking operations normal.
	13'+ Upper Gauge	Rising & projected to continue rising rapidly	High Water / High Flow Conditions	Watch	The Sector CC will initiate a Safety Advisory SMIB.
	25.9' Upper Gauge > 33' Lower Gauge	Rising	Max Locking Ability / Potential Weir Navigation	Action	Sector Ohio Valley and/or CORMIG will initiate a phone conference between CG, USACE and CORMIG. Factors to evaluate include rate of rise and weather conditions. Lock ceases operations and vessels will experience delays. Consider river closure and identifying lay-up locations. The SCC will issue BNM (Encl 1).
	25.9' Upper Gauge > 33' Lower Gauge	Falling	High Water / High Flow Conditions	Action	USACE, CG and/or CORMIG will initiate a phone conference to discuss factors for ceasing weir navigation / resuming locking, considering current, rate of fall, and weather conditions. The SCC will cancel BNM (Encl 1).
	<13' Upper Gauge	Falling	Normal Operations / Normal Flow Conditions	Recovery	Continue monitoring river conditions and cancel SMIB.

GREEN RIVER – Lock 1

HIGH WATER Enclosure 1 (example)

Broadcast Notice to Mariners

THE U.S. COAST GUARD CAPTAIN OF THE PORT HAS ISSUED THIS SAFETY ADVISORY DUE TO HIGH WATER THAT EXISTS IN THE VICINITY OF LOCK 1, MILE MARKER 9.1, GREEN RIVER. MARINERS ARE ADVISED THAT LOCK 1 HAS CEASED LOCKING OPERATIONS DUE TO HIGH WATER WITH AN UPPER GAUGE READING ABOVE 25.9 FEET AND MARINERS SHOULD CONTACT THE LOCK OPERATOR TO DETERMINE IF IT IS SAFE TO NAVIGATE OVER THE WEIR.

4.H. Green River Action Plan
4.H.3. Lock & Dam 2 High Water Operations

CRITICAL AREA DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
<p align="center">Lock 2</p> <p align="center">GREEN RIVER MILE MARKER: 63.1</p> <p align="center">Reference: Lock 2</p> <p>OTHER USEFUL DATA:</p> <p>CEASE LOCKING ANYWHERE BETWEEN 21.3 AND 22.5 UG DEPENDING ON CONDITIONS.</p> <p>THE POTENTIAL FOR VESSEL ALLISIONS WITH L&D 2 TENDS TO INCREASE AS WATER RISES AND CURRENT INCREASES, SPECIFICALLY BETWEEN 16' AND 19' ON THE UPPER GAUGE. VESSELS EXPERIENCE OUTDRAFT WHILE APPROACHING LOCK DOWNBOUND. MARINERS ARE ADVISED TO EXERCISE EXTREME CAUTION AND PREPARE FOR POTENTIAL OUTDRAFTS.</p> <p>CAUTIONARY NOTE 1: Mariners are advised to hug the right descending bank when approaching downbound.</p> <p>CAUTIONARY NOTE 2: Outdrafts are particularly strong beginning at 18' UG. Downbound mariners may need to push hard to get into the gate and then back off upon reaching the gate to prevent being overcome by outdrafts.</p>	<13' Upper Gauge	Rising	Normal Operations / Flow Conditions	n/a	Locking operations normal.
	13'+ Upper Gauge	Rising & projected to continue rising	High Water / High Flow Conditions – Outdraft starts	Watch	The Sector CC will initiate a SMIB.
	18'+ Upper gauge	Rising	High water / High Flow - Severe Outdrafts	Action	Sector Ohio Valley and/or CORMIG will initiate a phone conference between CG, USACE and CORMIG. Factors to evaluate include rate of rise, weather conditions, number of barges in tow, configuration of boxed vs. raked barges. Consider tow size limitations and/or horsepower per tow limitations.
	21.3' – 22.5' Upper Gauge / > 25' Lower gauge	Rising	Max Locking Ability / Potential Weir Navigation	Action	USACE, CG and/or CORMIG will initiate a phone conference. Factors to evaluate: rate of rise/weather conditions. Lock ceases operations and vessels will experience delays. Consider river closure and identifying lay-up locations. The SCC will issue BNM (Encl 1).
	21.5' - 23' Upper Gauge > 25' Lower Gauge	Falling	Potential Weir Navigation / High Water / High Flow Conditions	Action	USACE, CG and/or CORMIG will initiate a phone conference to discuss factors for ceasing weir navigation and resuming locking, considering current, rate of fall, and weather conditions. The SCC will update the safety advisory (encl. 1)
	< 18' Upper gauge	Falling	High water / High Flow - Outdrafts	Recovery	Continue conference calls, monitor conditions, and adjust restrictions.
	<13' Upper Gauge	Falling	Normal Operations / Normal Flow Conditions	Recovery	Continue monitoring river conditions and cancel SMIB.

GREEN RIVER – Lock 2

HIGH WATER Enclosure 2 (example) Broadcast Notice to Mariners

THE U.S. COAST GUARD CAPTAIN OF THE PORT HAS ISSUED THIS SAFETY ADVISORY DUE TO HIGH WATER THAT EXISTS IN THE VICINITY OF LOCK 2, MILE MARKER 63.1, GREEN RIVER. MARINERS ARE ADVISED THAT LOCK 2 HAS CEASED LOCKING OPERATIONS DUE TO HIGH WATER WITH AN UPPER GAUGE READING ABOVE 22.5 FEET AND MARINERS SHOULD CONTACT THE LOCK OPERATOR TO DETERMINE IF IT IS SAFE TO NAVIGATE OVER THE WEIR.

4.I. Ice Conditions: ALL ZONES

CRITICAL REACH DESCRIPTION	TRIGGER READING	TREND	DESCRIPTION	PHASE	ACTION
ALL OHIO VALLEY ZONES	No Ice		Normal Operations	n/a	Corps distributes informational navigation notice in early winter, prior to ice season.
	Ice Build-Up in Channel and Sheet Ice Formation	Predicted weather forecast indicates extreme temperatures. Ice buildup begins in the creeks and tributaries.	Mariners consulting with lock masters for indications of ice buildup. Ice Interferes with Normal Navigation. Sheet ice will at times prevent opening of the upper and lower lock gates. When the lock gates cannot be fully opened into recesses, they are highly vulnerable to extensive damage from tows entering or departing the lock chamber.	Watch	Consider advisories on missing buoys and safety zone restriction for tow width and length. Ice couplings for entering locks. Single-file traffic in ice-narrowed channels. Navigators are cautioned to exercise extreme care when entering or departing the lock chamber to avoid damage to the lock gates. When ice builds up to the extent that full usage of the lock chamber is prohibited, length and/or width restrictions may be imposed on lockages.
	Heavy Ice Gorges	Prolonged extreme temp.	Channel blocked in some locations. Gorged ice becomes a particular hazard when attempts are made to drive barges through the formation. Barges forced through or over gorged ice may be damaged.	Action	Consider river closure, restriction of types of traffic, or allow single lane traffic in open areas only. Navigators are advised to exercise due caution to avoid damaging barges and unusual currents and high localized flow or out draft conditions due to water bypassing the temporary dam formed by the gorge. Navigators approaching an ice gorge should make certain that the towboat has sufficient power to properly control the number of barges in tow under such unusual conditions of flow.
	Rotting ice, increased flow softening ice	Rising temperatures and rain flushing ice out.	Ice softening, water noticeable on top of the ice flow, channel conditions improving, and ice receding from channel.	Recovery	ATON checks, locks and dams flush ice; lock personnel will notify USCG to release a broadcast prior to prolonged flushing at the locks.

5. Drift Removal Procedures

5.A. Huntington District Drift Removal Procedures

During high river flow conditions both the USACE and navigation industry are challenged with drift and debris accumulation at locks on the Ohio River. In addition to river topography, variables such as pool stage, wind direction and wind velocity largely influence the accumulation and removal of drift from the approaches, fore bays and chambers of the locks. The primary methods of drift removal are by locking and flushing it through the lock chamber(s) but this is dependent upon the design and capabilities of each individual lock. The following guidance was prepared to communicate the expected drift removal practices and expectations for each lock within the Huntington District. They are guidelines only.

The characterization of drift accumulation at locks as “light”, “moderate” and “heavy” is not an absolute determination. It is rather a qualitative comparison of drift accumulation observations over the years by a number of experienced navigation industry representatives.

5.A.1. Willow Island Locks and Dam

(Light Drift Accumulation)

Light drift accumulates in the upper approach with a lower gauge of less than 16.0’ and little wind. Drift will be passed using the valves in the auxiliary chamber.

Heavy drift accumulates in the upper approach with a lower gauge of at least 20.0’ and little wind. Drift will be flushed with the auxiliary chamber emergency gate. It may be necessary to use the main chamber emergency gates to flush drift through the lock. Drift has a tendency to hang at the edge of the lower river wall at the line between the river’s flow and the slack water. When the wind is blowing upriver, it may not be possible to move the drift through the lock. Heavy drift does not accumulate typically until the dam openings are fully open in a rising river.

5.A.2. Belleville Locks and Dam

(Heavy Drift Accumulation)

Light drift accumulates in the upper approach with a lower gauge of 12.0’ to 26.0’ and little wind. Drift will be passed using the valves in the auxiliary chamber.

When there is not sufficient lift to move the drift or the volume of the drift gets too great, two bulkheads are set in the auxiliary chamber using the bulkhead crane. Both upper and lower gates are then latched in the open position. Drift is flushed by leaving the bottom bulkhead on the sill and raising the top bulkhead to clear the upper pool elevation. If the upper pool exceeds 14.0’ or 584 feet above sea level another bulkhead is added.

Drift has a tendency to hang at the edge of the lower river wall at the line between the river’s flow and the slack water. If you have an upriver wind and it is working against you, it may be impossible to get rid of the drift. Heavy drift does not accumulate typically until the dam openings are fully open in a rising river.

5.A.3. Racine Locks and Dam

(Heavy Drift Accumulation)

Light drift accumulates in the upper approach with a lower gauge of less than 14.0’ and little wind. Drift will be passed using the valves in the auxiliary chamber.

Heavy drift accumulates in the upper approach with a lower gauge of at least 33.0’ and little wind. Drift will be flushed with the auxiliary chamber emergency gate. It may be necessary to use the main chamber emergency gates to flush drift through the lock. Drift has a tendency to hang at the edge of the lower river wall at the line between the river’s flow and the slack water. When the wind is blowing upriver, it may not be possible to move the drift through the lock. Heavy drift does not accumulate typically until the dam openings are fully open in a rising river.

5.A.4. Robert C. Byrd Locks and Dam

(Light Drift Accumulation)

Due to the design and layout of the upper lock approach with regard to the dam and location of the filling intake system, this lock rarely has drift and debris accumulation within the lock approach.

Light drift can accumulate in the upper approach with a lower gauge of less than 15.0' and little wind. Drift will be passed utilizing the valves in the auxiliary chamber.

The project is also equipped with emergency gates on both chambers to pass debris if needed.

5.A.5. Greenup Locks and Dam

(Heavy Drift Accumulation)

Light drift accumulates in the upper approach with a lower gauge of less than 25.7' and little wind. Drift will be passed using the valves in the auxiliary chamber.

Heavy drift accumulates in the upper approach with a lower gauge of at least 25.7' and little wind. Drift will be flushed with the auxiliary chamber emergency gate. It may be necessary to use the main chamber emergency gates to flush drift through the lock. Drift has a tendency to hang at the edge of the lower river wall at the line between the river's flow and the slack water. When the wind is blowing upriver, it may not be possible to move the drift through the lock. Heavy drift does not accumulate typically until the dam openings are fully open in a rising river.

5.A.6. Meldahl Locks and Dam

(Light Drift Accumulation)

Light drift accumulates in the upper approach with a lower gauge of less than 35.0' and little wind. Drift will be passed using the valves in the auxiliary chamber.

Heavy drift accumulates in the upper approach with a lower gauge of at least 40.6' and little wind. Drift will be flushed with the auxiliary chamber emergency gate. It may be necessary to use the main chamber emergency gates to flush drift through the lock. Drift has a tendency to hang at the edge of the lower river wall at the line between the river's flow and the slack water. When the wind is blowing upriver, it may not be possible to move the drift through the lock. Heavy drift does not accumulate typically until the dam openings are fully open in a rising river.

5.A.7. London Locks and Dam - (Kanawha River)

(Light Drift Accumulation)

Drift has to be dealt with promptly when it accumulates on the guard wall otherwise the barges will not lay flat on the wall. This complicates recoupling of tows and inhibits deck crew movement between barges.

Typically drift is pushed into the chamber by down bound tows and locked through with the tow. This clears the majority of the drift from the upper lock approach.

Drift can also be locked through the chamber by by-passing the valve-to-gate interlocks. The lock's emptying valves are utilized to draw the debris into the chamber. The filling valves are then opened to push the drift out of the chamber.

Under certain conditions, the roller dam gates can be utilized to draw the drift onto the dam. This does not clear any drift in the lock approach but may prevent additional drift from accumulating.

5.A.8. Marmet Locks and Dam - (Kanawha River)

(Light Drift Accumulation)

Marmet does not have a history with drift and debris accumulation. Should significant drift accumulation occur the lock's emptying valves could be used to draw the drift into the chamber followed by the filling valves use to flush the drift out of the chamber. Given the lock's through-the-sill intake system, this procedure has not been proven.

5.A.9. Winfield Locks and Dam - (Kanawha River)

(Moderate Drift Accumulation)

Usually drift and debris is pushed into the chamber by down bound tows and locked through with the tow. This will clear the majority of the drift from the upper approach.

Lock personnel utilize the subsurface air system to move the drift out of the miter gate recess to permit their full opening.

The emergency gate can also be used to pass drift through the 800' main chamber. Under most conditions, once the drift has passed through the lock chamber, the debris may linger in the lower approach.

5.B. Louisville District Drift Removal Procedures

During high river flow conditions both the USACE and navigation industry are challenged with drift and debris accumulation at locks on the Ohio River. In addition to river topography, variables such as pool stage, wind direction and wind velocity largely influence the accumulation and removal of drift from the approaches, fore bays and chambers of the locks. The primary methods of drift removal are by locking and flushing it through the lock chamber(s) but this is dependent upon the design and capabilities of each individual lock. The following guidance was prepared to communicate the expected drift removal practices and expectations for each lock within the Louisville District. They are guidelines only.

The characterization of drift accumulation at locks as “light”, “moderate” and “heavy” is not an absolute determination. It is rather a qualitative comparison of drift accumulation observations over the years by a number of experienced navigation industry representatives.

5.B.1. Markland Lock

(Heavy Drift Accumulation)

Light drift accumulates in the upper approach with a lower gauge of 20.0' with little. Drift will be passed using the valves in auxiliary chamber.

Heavy drift accumulates in the upper approach with a lower gauge of at least 43.0' and little wind. Drift will be flushed with the auxiliary chamber emergency gate. It may be necessary to use the main chamber emergency gates to flush drift through the lock. Drift has a tendency to hang at the edge of the lower river wall at the line between the river's flow and the slack water. When the wind is blowing upriver, it may not be possible to move the drift through the lock.

5.B.2. McAlpine Lock

(Light Drift Accumulation)

McAlpine does not have a history with drift and debris accumulation. The dam gates do not sit closed for long periods of time as at other dams and the canal approach does not attract significant drift.

5.B.3. Cannelton Lock

(Heavy Drift Accumulation)

Flushing drift at Cannelton is an infrequent occurrence - usually 2-3 times in an average year. It takes approximately 2-3 hours to flush drift out of the fore bay.

Flushing of drift is not triggered by any specific pool level but rather when there is sufficient accumulation to hazard northbound navigation traffic departing the lock. After 1600 and on weekends lock operators are required to contact the lockmaster if drift is becoming a hazard to navigation. Flushing is accomplished by maintenance personnel through the auxiliary chamber.

5.B.4. Newburgh Lock

(Moderate Drift Accumulation)

Flushing drift at Newburgh occurs infrequently. When present in the approach lock personnel manage the drift as follows:

1. Advantageously utilize the wind, current, and cycling of the lock chambers to discharge drift.
2. Communicate with approaching tow boats advising them of the presence of drift.
3. Utilize the project's work boat to push drift through the chamber when feasible and safe to do so.
4. With a normal upper pool, place two emergency bulkheads in the auxiliary chamber.

5.B.5. John T. Myers Lock

(Light Drift Accumulation)

Drift is not a significant problem at JT Myers because the river bend at Highland Rocks just above the project directs most of it to the dam. Substantial drift is observed when the dam is in the all-out stage at 12.0' upper gauge and 30.0' lower but it typically passes through the open dam gates.

Drift does not build up on the dam during higher flows from 100' to 270' dam opening because it gets sucked under and passes unassisted once the dam opening reaches 70'.

Drift can be flushed from the upper approach by setting the bulkheads above the auxiliary chamber but this is infrequently necessary.

5.B.6. Smithland Lock

(Light Drift Accumulation)

When drift accumulates in the upper approach, lock personnel open the upper gates and pin the top latch of the gate in the recess. With the filling valves closed and the interlock system bypassed, the emptying valves can be opened to draw the drift into the chamber. Once there, with the emptying valves closed and the upper gates unpinned and closed, the lower gates can be opened and pinned and the filling valves opened to flush the drift from the chamber.

The project's work boat can be used to work the drift into the chamber for locking through. The work boat can also be used to pull out large pieces of drift from the approach.

The river chamber is usually where most of the drift collects. Northbound towboats push it upstream as they leave and it flows around the end of the guard wall onto the dam.

Drift is flushed off the dam when running more than 15 feet of opening on a gate. One gate is opened with the adjacent two adjusted to draw the drift through the opened gate.

6. Risk Assessment
6.A. Casualty History by Location

FY 2009-2015 CAG Data				
River	Pool	# of Collisions	# of Allisions	# of Groundings
Green River	MM 0 – 9	0	5	1
	MM 9.2 – 63.1 Dam No. 1	0	2	5
	MM 63.1 – 108 Dam No. 2	0	3	2
	MM 109 – on Dam No. 3	0	0	0
Kanawha	MM 0 – 31.1 Winfield L&D	0	3	8
	MM 31.1 – 67.7 Marmet L&D	0	2	5
	MM 67.7 – 82.8 London L&D	0	0	0
	MM 82.8 – 90.5 end of channel	0	0	0
Monongahela River	MM 0 – 11.3 Braddock	0	9	13
	MM 11.3 – 41.5 Lock 4	0	6	3
	MM 41.5 – 78.2 Maxwell	0	4	4
Allegheny River	MM 0.0-6.7	0	1	0
	MM 6.7-14.5 Lock 2 Pool	0	0	0
	MM14.5 - 24.2 Lock 3 Pool	0	1	1
	MM24.2-30.4 Lock 4 Pool	0	0	0
	MM30.4-36.3 Lock 5 Pool	0	0	0
	MM36.3-45.7 Lock 6 Pool	0	0	0
	MM45.7-52.6 Lock 7 Pool	0	0	0
	MM52.6-62.2 Lock 8 Pool	0	0	0
Ohio River	MM 0 – 6.2 Emsworth	0	2	2
	MM 6.2 – 13.3 Dashields	1	4	2
	MM 13.3 – 31.7 Montgomery	0	5	1
	MM 31.7 – 54.4 New Cumberland	1	5	2
	MM 54.4 – 84.2 Pike Island	0	3	8
	MM 84.2 – 126.4 Hannibal	1	3	10
	MM 126.4 – 161.7 Willow	0	0	2
	MM 161.7 – 203.9 Belleville	1	6	3
	MM 203.9 – 237 Racine	0	4	5
	MM 237 – 279.2 R.C.Byrd	0	6	4
	MM 279.2 – 341 Greenup	2	7	1
	MM 341 – 436.2 Meldahl	1	7	3
	MM 436.2 – 531.5 Markland	4	8	8
	MM 531.5 – 606.8 McAlpine	2	19	17
	MM 606.8 – 720.7 Cannelton	0	11	18
MM 720.7 – 776.1 Newburgh	0	10	21	
MM 776.1 – 846 J.T. Myers	2	7	49	

	MM 846 – 918.5 Smithland	1	9	21
	MM 918.5 – 939 Lock 52	2	23	50
	MM 939 – 963 Lock 53	1	9	23
	MM 963 – 981 Cairo	3	23	7
Upper Mississippi River	MM 0.3 – 1.3 Cairo Point to Route 60	0	2	2
	MM 1.3 – 43.2 Route 60 / 62 Bridge to Thebes	0	2	34
	MM 43.2 - 44 Thebes Rail Road Bridge to Grays Point	0	4	5
	MM 44.0 – 109.9 Grays Point to Chester	4	3	64
Lower Mississippi River	MM 845-Cairo	6	6	30
Tennessee River	MM 0 - 21.1 I-24 Bridge & Vicinity	3	4	11
	MM 22.4 - 25.2 Kentucky Lock to Barkley Canal	0	3	1
	MM 25.2 - 32 Barkley Canal to Smith Bay	0	0	0
	MM 32 - 66.2 Smith Bay to RT 79 Bridge	0	4	3
	MM 66.2 - 100.5 RT 79 Bridge to Johnsonville	0	2	3
	MM 100.5 - 135 Johnsonville to Pickwick L & D	0	0	1
	MM 135 - 180 Perryville to Cerro Gorde	0	1	2
	MM 180- 204.5 Cerro Gorde to Big Bend	0	0	3
	MM 204.5 - 206.7 Big Bend to Pickwick L & D	0	0	1
	MM 206.7 - 239 Pickwick to Krogers Island	0	0	2
	MM 239 - 259 Krogers Island to Wilson	0	1	4
	MM 259 - 275 Wilson to Wheeler	1	1	0
	MM 275 - 305 Wheeler to Decatur	2	0	2
	MM 305 - 349 Decatur to Guntersville	0	0	1
	MM 349 - 386 Guntersville to B.B.Coomer Hwy	0	1	0
	MM 386 - 424.5 B.B Coomer Hwy to Nickajack	0	0	4
	MM 424.5 - 471 Nickajack to Chick including "The Gorge"	1	1	1
	MM 471 – end	0	2	5
	Cumberland River	Cumberland River canal (at MM 33)	0	0
MM 0 - 30		0	4	18
MM 30.6 - 55 Barkley Lock & Dam		0	0	8
MM 55 - 81.5 Barkley Lock & Dam		1	7	4

	MM 81.5 - 115 Barkley Lock & Dam	1	0	2
	MM 115 – 148.7 Barkley Lock & Dam to Cheatham	0	1	4
	MM 148.7 - 181 Cheatham to Barnes Shoal Upper DBN	0	1	2
	MM 181 - 216.2 Barnes Shoal to Old Hickory L&D	0	13	3
	MM 216.2 - 242 Old Hickory L&D to Odoms Bend	0	0	0
	MM242 - 381 Odoms Bend to Celina	0	0	0

6.B. Waterway Analysis

6.B.1. Tool Legend

Need for Precise Control	Navigational Complexity			Congestion	Casualty History (7 yr period)
	Obstructions to Nav	Channel Width (Full Banks)	Bend Radius		
High	Multiple Obstructions	Narrow (single passage)	sharp bend (>180 deg)	Traffic always present	>10
Medium	Single Obstruction	Medium (dual passage possible/likely)	gradual bend (btn 90 and 180 or	Traffic sometimes present	6<<10
Low	No Obstructions	Wide (more than 2 vsl passage possible)	no bend (>90 deg) or no river crossing	Traffic rarely present	<6

6.B.2. Risk Factors

6.B.2.a. Monongahela River

Location	Factors to Increase Likelihood of Casualty				Casualty History	Risk Score
	Obs to Nav	Channel Width	Bend Radius	Congestion		
MM 0 - 11.3 BRADDOCK	High	High	High	High	High	600
MM 11.3 - 41.5 LOCK 4	Medium	Medium	Medium	High	Medium	150
MM 41.5 - 78.2 MAXWELL	High	High	High	High	Medium	420

6.B.2. Risk Factors

6.B.2.b. Allegheny River

Location	Factors to Increase Likelihood of Casualty				Casualty History	Risk Score
	Obs to Nav	Channel Width	Bend Radius	Congestion		
MM 0.0-6.7	Low	Medium	Low	High	Low	114
MM 6.7-14.5 Lock 2 Pool	Low	Medium	Medium	High	Low	123
MM 14.5 - 24.2 Lock 3 Pool	Low	Low	Medium	High	Low	114
MM 24.2-30.4 Lock 4 Pool	Low	Medium	Medium	High	Low	123
MM 30.4-36.3 Lock 5 Pool	Low	Low	Low	Medium	Low	15
MM 36.3-45.7 Lock 6 Pool	Low	High	Medium	Low	Low	114
MM 45.7-52.6 Lock 7 Pool	Low	Medium	Medium	Low	Low	24
MM 52.6-62.2 Lock 8 Pool	Low	Medium	High	Medium	Low	123
MM 62.2 - 69 Lock 9 Pool	Low	High	High	Low	Low	204

6.B.2. Risk Factors
6.B.2.c. Ohio River

Location	Factors to Increase Likelihood of Casualty				Casualty History	Risk Score
	Obs to Nav	Channel Width	Bend Radius	Congestion		
MM 0 - 6.7 EMSWORTH	Medium	Low	Medium	High	Low	123
MM 6.7 - 13.3 DASHIELDS	High	Medium	Medium	High	Medium	240
MM 13.3 - 31.7 MONTGOMERY	High	Medium	Medium	High	Medium	240
MM 31.7 - 54.4 NEW CUMBERLAND	Medium	High	Medium	High	Medium	240
MM 54.4 - 84.2 PIKE ISLAND	Medium	High	Medium	High	High	420
MM 84.2 - 126.4 HANNIBAL	High	High	Medium	High	High	510
MM 126.4 - 161.7 WILLOW	High	High	Medium	High	Low	312
MM 161.7 - 203.9 BELLEVILLE	High	High	Medium	High	Medium	330
MM 203.9 - 237 RACINE	High	High	High	High	Medium	420
MM237 - 279.2 R.C.BYRD	High	Medium	Medium	High	Medium	240
MM 279.2 - 341 GREENUP	Low	Low	Low	High	Medium	123
MM341 - 436.2 MELDAHL	Low	Low	Medium	High	High	312
MM 436.2 - 531.5 MARKLAND	High	Low	High	High	High	501
MM 531.5 - 606.8 MCALPINE	Medium	Low	Medium	High	High	321
MM 606.8 - 720.7 CANNELTON	Low	Medium	Medium	High	High	321
MM 720.7 - 776.1 NEWBURGH	Low	Medium	Low	High	High	312
MM 776.1 - 846 JT MYERS	Medium	Medium	Medium	High	High	330
MM 846 - 918.5 SMITHLAND	Low	Low	Medium	High	High	312
MM 918.5 - 939 LOCK52	High	High	Low	High	High	501
MM 939 - 963 LOCK 53	High	High	Low	High	High	501
MM 963 - 981 TO CAIRO	High	High	Low	High	High	501

6.B.2. Risk Factors
6.B.2.d. Mississippi River

Location	Factors to Increase Likelihood of Casualty				Casualty History	Risk Score	
	Obs to Nav	Channel Width	Bend Radius	Congestion			
Upper	MM 0.3 - 1.3 Cairo Point to Route 60	High	Medium	Low	High	Low	213
	MM 1.3 - 43.2 Route 60/62 Bridge to Thebes	High	Medium	Medium	High	High	420
	MM 43.2 - 44 Thebes RR Bridge to Grays Point	Medium	Medium	Low	High	Medium	141
	MM 44.0 - 109.9 Grays Point to Chester	Medium	Medium	Medium	High	High	330
Lower	MM 845 - Cairo	Medium	Medium	High	High	High	420

6.B.2. Risk Factors

6.B.2.e. Tennessee River

Location	Factors to Increase Likelihood of Casualty				Casualty History	Risk Score
	Obs to Nav	Channel Width	Bend Radius	Congestion		
MM 0.0-21.1 (I-24 Bridge & Vicinity)	Low	High	Low	High	High	402
MM 22.4-25.2 (Kentucky Lock to Barkley Canal)	Low	Low	Low	High	Low	105
MM 25.2-32 (Barkley Canal to Smith Bay)	Low	Low	Low	Medium	Low	15
MM 32-66.2 (Smith Bay to Rt 79 Bridge)	Low	Medium	Low	Medium	Medium	42
MM 66.2-100.5 (Rt 79 Bridge to Johnsonville)	Low	Medium	Low	Medium	Low	24
MM 100.5-135 (Johnsonville to Perryville)	Low	High	Medium	Medium	Low	123
MM 135-180 (Perryville to Cerro Gorde)	Low	High	High	Medium	Low	213
MM 180-204.5 (Cerro Gorde to Big Bend)	Low	High	High	Medium	Low	213
MM 204.5-206.7 (Big Bend to Pickwick L & D)	Low	High	High	Medium	Low	213
MM 206.7-239 (Pickwick to Krogers Island)	Low	Low	Low	Medium	Low	15
MM 239-259 (Krogers Island to Wilson)	Low	High	Low	Medium	Low	114
MM 259-275 (Wilson to Wheeler)	Low	Low	Low	Medium	Low	15
MM 275-305 (Wheeler to Decatur)	Low	Medium	Low	Medium	Low	24
MM 305-349 (Decatur to Gunter'sville)	Low	Medium	Medium	Low	Low	24
MM 349-386 (Gunter'sville to B.B Coomer Hwy)	Low	Medium	Low	Low	Low	15
MM 386-424.5 (B.B Coomer Hwy to Nickajack)	Low	High	Medium	Low	Low	114
MM 424.5-471 (Nick to Chickamauga & "The Gorge")	Low	High	High	High	Low	303
MM 471- on	Low	High	High	Low	Medium	222

6.B.2. Risk Factors

6.B.2.f. Cumberland River

Location	Factors to Increase Likelihood of Casualty				Casualty History	Risk Score
	Obs to Nav	Channel Width	Bend Radius	Congestion		
Cumberland River Canal (at MM 33)	Medium	High	Low	High	Low	213
MM 0.0-30.6 (start to Barkley L&D)	Medium	High	Medium	Medium	High	330
MM 30.6-55 (Barkley L&D to Rock Castle Point)	Low	High	Medium	Medium	Medium	141
MM 55-81.5 (Rock Castle Point to Bear Creek Lt)	Low	High	Medium	Medium	High	321
MM 81.5-115 (Bear Creek Lt to Palmyra)	Low	High	High	Medium	Low	213
MM 115-148.7 (Palmyra to Cheatham L&D)	Low	High	High	Medium	Medium	231
MM 148.7-181 (Cheatham to Barnes Shoal Upper DBN)	Low	High	High	Medium	Low	213
MM 181-216.2 (Barnes Shoal to Old Hickory L&D)	High	High	High	High	High	600
MM 216.2-242 (Old Hickory to Odoms Bend)	Low	High	High	Medium	Low	213
MM 242-381 (Odoms Bend to Celina)	Low	High	High	Low	Low	204

6.B.2.g. Kanawha River

Location	Factors to Increase Likelihood of Casualty				Casualty History	Risk Score
	Obs to Nav	Channel Width	Bend Radius	Congestion		
MM 0-31.1 Winfield L&D	Medium	Medium	Medium	High	High	330
MM 31.1-67.7 Marmet L&D	Medium	Medium	Medium	High	Medium	150
MM 67.7-82.8 London L&D	Medium	Medium	Medium	Medium	Low	42
MM 82.8-90.5 end of Channel	Low	High	Medium	Low	Low	114