



REFERENCE | 14

“Preliminary Harbor Operations Plan”

AS PREPARED BY
Tri-City Regional Port District

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**Preliminary
Harbor Operations Plan
for the
River's Edge South Harbor
Tri-City Regional Port District**

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1. **Inbound and Outbound Vessel Movement.** Characteristics of the proposed harbor including its location, configuration and related design features will combine to ensure both efficiency and safety. Sufficient space will be available to maneuver all inbound and outbound barges within the overall harbor limits; thereby eliminating any need to work barges outside the harbor or infringe upon the navigation channel. As a result, operations within this harbor will not impede navigation or create any safety concerns for passing vessels.
2. **Typical harbor operations will use the following procedures:**
 - a. One (1) liquid or dry bulk transient barge will be loaded/unloaded most of the time.
 - b. Additional standby transient barges will be positioned and secured at the four downstream in-harbor angle tri-pod dolphins.
 - c. As required, harbor tugs will be available for shifting and spotting barges. In addition, harbor tugs will be dedicated to each liquid barge initially.
 - d. An auxiliary work boat will also be available in the harbor to ensure safe operations. The primary purpose of this vessel is to provide additional capability, as needed, to secure and manage barges in the harbor or for emergencies.
3. **Communications.** Communication among mariners is critical on the inland waterway; its importance must not be underestimated and will be a high priority in harbor operations. Recognizing the harbor's location, communications within the harbor and between passing vessels will be maintained continuously. To supplement customary and required communications between mariners such as the "Automated Information System" (AIS), a system using visual and sound technology is being proposed and designed in conjunction with the overall homeland security system for the Port District complex. This new system will allow harbor operators to visually monitor vessels exiting Locks 27 as well as up bound vessels preparing to pass the harbor entrance. Therefore, harbor operators will have sufficient awareness of vessels approaching the harbor and can ensure all activities are secure within the harbor limits. In addition, the concept may include sound and/or lights within the harbor as further warning devices. The final design of this system would be contingent upon review and input from the navigation industry and the U.S. Coast Guard.

4. **Estimated Daily Vessel Operations.** Harbor usage is estimated based on the initial requirements generated from the ethanol plant for shipment of ethanol and dry distillers grain and soluble (DDGS); and an estimate of future public requirements for both dry and bulk tonnage. Therefore, this represents an initial need to load, on average, one (1) barge per day and a planned need to load approximately two (2) barges per day based on a six (6) day workweek. No more than two to four barges are expected to utilize the harbor at any one time. Phase 2 of the harbor plan includes a general cargo dock designed for the upstream harbor angle; however, construction of this 400 foot long sheet pile wall will necessarily hinge on future market conditions.

5. **Barge Loading and Unloading Durations.** The planned terminal equipment is expected to produce rates for dry and liquid bulk as follows.

a. Loading:

Dry bulk – 1,600 tons per hour

Liquid bulk – 2,000 to 2,400 gallons per minute

b. Unloading:

Dry bulk – 800 tons per hour

Liquid bulk – 2,000 to 2,400 gallons per minute

6. **Vessels Using the Harbor:**

a. **Barges:** Typically, barges measuring 200 feet long and 35 feet wide will be used; occasionally, liquid barges up to 297 feet long and 54 feet wide could be needed.

b. **Towboats.** Harbor tugs, typically measuring 75 feet long and 32 feet wide, will normally be operated in the harbor; however, the harbor is designed to accommodate larger towboats.

c. **Auxiliary Harbor Work Boat.** To ensure safe harbor operations, a standby work boat will be available. This type of vessel is currently in use for similar purposes on other waterways in the United States. Final vessel specifications may vary; however, it is anticipated that this work boat will be approximately 26 feet long and 14 feet wide and powered by twin engines with 600 total horsepower.

7. **Permanent Barges and Structures.** These permanent features include:

a. Two (2) captive dock barges measuring 200 feet long and 35 wide secured by one sheet pile cell (30 foot diameter) in the center of the two dock barges and an additional sheet pile cell (19 foot diameter) on each end of the two dock barges; and

b. Four (4) tri-pod dolphins (36 inch steel pipe for the primary vertical support) placed along the downstream harbor angle.

8. **Method to secure Permanent Dock Barges.** Placed within the single 30 foot diameter cell and two 19 foot diameter cells, these captive barges will be secured using a tested barge guide system which allows the dock barges adjust to changes in river elevation.

9. **Methods to secure barges during loading/unloading at dock barges.** Due to the wave drawdown effect from passing tows, it is necessary to ensure that all barges in the harbor are adequately secured to prevent inadvertent release into the main navigation channel.

Four elements, presented below, will be employed in the South Harbor design and operation.

a. **Pull cable system.** The primary purpose of this device is to pull a barge along dock barges during loading/unloading, but it also provides a connection between the barge and the permanent dock barges.

b. **Breasting system.** This device is designed to hold a barge against the permanent dock barges; thus keeping the barge in a secure position during load/unloading operations.

c. **Barge tie offs.** The ends of the barges will be securely tied to the permanent dock barges during loading/unloading.

d. **Auxiliary Harbor Work Boat.** As mentioned previously, this boat will provide backup for the pull cable system, the breasting system and the barge tie-offs. Due to its size and horsepower, this boat can be operated by unlicensed personnel; thus, contributing to its versatility and availability. The horsepower and size of this harbor safety boat is based on recommendations from persons actively involved in similar harbor operations.

10. **Methods to secure barges positioned at downstream harbor angle tri-pod dolphins.**

a. Four (4) dolphins located along the downstream harbor angle will provide secure mooring for barges standing by for loading/unloading. Barges will be secured to each dolphin using cables attached to sliding “D” rings.

b. The Auxiliary Harbor Work Boat will also be available.

11. **Temporary tie-off location.** This particular harbor site is situated in an area where tows have traditionally tied off or temporarily held against the bank when necessary due to circumstances such as lock delays. The opportunity to continue this practice will be maintained. Harbor operators will cooperate with the industry during these periods to ensure continued availability of this location for this purpose when necessary.

12. **Maintenance Dredging.** Generally, channel sediment deposition in this area is expected to decrease due to the L-dike improvements which extended its length and increased its height. Based on the configuration of the harbor and its location, it is realistic to conclude that some harbor maintenance dredging can be anticipated. If needed, maintenance dredging will be accomplished through appropriate authorization which would specify acceptable methods, timeframes and dredged material disposal locations.

13. **Compliance with USEPA and USCG Safety and Environmental Regulations.** Additional compliance with Federal regulations administered by the U.S. Coast Guard and the U.S. Environmental Protection Agency includes formulation and approval of the following: (1) "Facility Response Plan;" (2) "Facility Security Plan;" and (3) "Operations Manual."