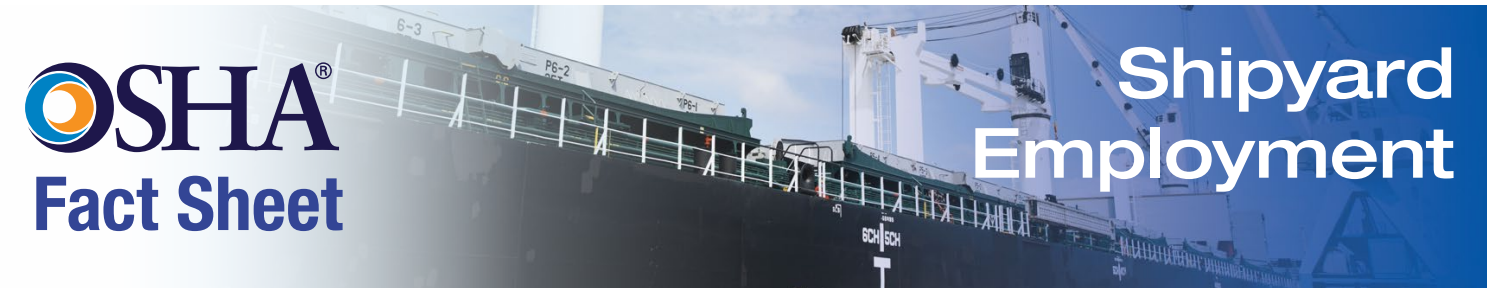
OSHA®
Fact Sheet



Shipyard Employment

Preparing for Severe Weather in Shipyards

Severe weather, such as hurricanes, tornadoes, blizzards, and floods, can occur with little warning. While detection and notification of these types of weather incidents have improved with the use of severe weather watches, warnings, and advisories, detailed planning and early action are vital in reducing injury, loss of life, and property damage.

Shoreside shipyard facilities required to maintain a worksite-specific emergency action plan in accordance with 29 CFR 1910.38(a) must address all potential sources of emergencies, including severe weather. Each emergency action plan, at a minimum, must contain the name or job title of personnel to be contacted for more information or an explanation of their duties under the plan, as well as procedures for reporting emergencies, initiating an evacuation, accounting for employees, and identifying essential personnel, including those designated to perform rescue and medical duties.

When planning for weather emergencies, it is important to understand local risk factors and policies that may impact operations before, during, and after such events. For each expected emergency, specific triggers for initiating action should be defined (e.g., severe weather watches, warnings, and advisories from the National Weather Service). It is essential that your plan provides sufficient time to safely prepare the shipyard, including evacuating workers and securing or moving vessels as directed by the U.S. Coast Guard Captain of the Port (COTP), in accordance with 33 CFR Part 160 Subpart B.

Every American shipyard falls under a COTP Zone, designated by 33 CFR Part 3. These zones frequently provide severe weather guidance to vessels and facilities by issuing "Port Conditions" ¾ shown in the table below ¾ to limit, restrict, or suspend all vessel movements and waterfront facility operations (33 CFR Part 165).

Port Condition	Required Response
WHISKEY (Alert) – Sustained gale-force winds (between 39-54 mph/34-47 knots) predicted within 72 hours. Prepare to implement an emergency action plan for severe weather.	• Review the requirements for Port Condition X-Ray.
X-RAY (Readiness) – Sustained gale-force winds predicted within 48 hours. Implement an emergency action plan for severe weather.	• Prepare to secure all operations within 24 hours, however, anticipating that the storm may accelerate, and that Port Condition Yankee may be set in less than 24 hours. • Secure potential missile hazards, inspect and secure vessels that will remain in port (e.g., laid-up vessels), and ensure final preparations are made for vessels planning to get underway/set anchorage. • Review the requirements for Port Condition Yankee.
YANKEE (Warning) – Sustained gale-force winds predicted within 24 hours. Commerce stops; all operations are to prepare the port for severe weather.	• Secure "Normal" port operations and direct efforts toward preparation for severe weather, notifying personnel that all vessel or port facility operations cease within 12 hours or less if the storm accelerates, and Port Condition Zulu is set. • Vessels identified for movement (underway/anchorage) depart. • Review the requirements for Port Condition Zulu.
ZULU (Danger) – Sustained gale-force winds predicted within 12 hours. Final preparation and verification that all requirements are met.	• Make final preparations for severe weather. Ensure all operations and equipment are secure. • Ensure moorings are secured. • Review the requirements for post-storm procedures.

Absorbing Effects of Severe Weather

To minimize the impact of severe weather, the emergency action plan should include specific personnel assignments for each severe weather emergency reasonably expected to occur (e.g., hurricanes, tornadoes, blizzards, and floods). Planning, if applicable, should include clients and third-party contractors performing work in the shipyard and their equipment. For example, shipyard personnel preparing for a hurricane or tropical storm would be responsible for moving ground equipment to a designated location to avoid damage. The removal or securing of shipyard services, such as shore power, as well as the vessels themselves, would need to be coordinated by the shipyard, vessel personnel, and COTP. Planning and coordination should ensure that dry docks, barges, and ships are securely moored, that all mooring lines and bollards are in good condition, and that they are not positioned in a way that poses a risk to critical infrastructure, such as bridges, power lines, and pipelines.

Similarly, check that tools and equipment are secure. Further, all personnel should be made aware of specific triggers of expected emergencies and the associated actions. For example, where lightning is anticipated, personnel should know when to cease work and secure equipment.

With severe weather, there is also the possibility that personnel may need to be evacuated or sheltered in place. It is important to identify evacuation procedures, routes, and exits in advance, and have that information included in your emergency action plan and communicated to all personnel. While the COTP or local government will typically issue guidance on recommended actions associated with severe weather, shipyards should not solely rely on or wait for instructions from those entities. Each shipyard should have at least one person designated to regularly monitor severe weather resources (e.g., local news, weather alerts, watches, and warnings) to ensure there is time to react.

Don't be caught off guard! Tune in to:

- Wireless Emergency Alerts (WEA)
- NOAA Weather Radio

Decide to evacuate personnel or shelter in place promptly. Where evacuation is imminent, a timely decision will allow local personnel sufficient time to prepare their property and families to leave the area. Visitors to the shipyard, such as foreign or traveling workers, should also be given clear evacuation or sheltering instructions and provided the means to comply with those instructions. It is important to note that there are special considerations when it comes to domestic and foreign-flagged ships. Ships that operate under a foreign flag may not be able to rely on their state authorities for assistance and not all crewmembers will have a visa for smooth entry into the U.S. during an evacuation. Planning for the safety of the ship's crew should be a part of the contract, including procedures for evacuation. Additionally, communication with the ship's crew should occur well in advance of any severe weather event. Ideally, a ship should leave

or be towed to safety before a hurricane or flooding. In extreme circumstances, to protect the lives of ship's crew members, the flag state authority and the local COTP can assist with evacuation strategies, authorize the down manning of non-essential crew members, or authorize a complete evacuation.

Finally, plans for monitoring conditions should be outlined in the emergency action plan, including the state of ships, boats, barges, and floating dry docks during a storm. Responsibility is usually shared between the shipyard and, in the case of a ship or boat, the captain of the vessel. However, it is important to note that monitoring should be in place solely for the purpose of notifying the local COTP or other pertinent personnel if a ship, boat, barge, or floating dry dock breaks loose. Shipyard personnel, ship's force, or any other personnel should not be sent to re-secure large assets during a severe storm.

Recovering After a Severe Weather Event

Recovery from damaging weather can take a significant amount of time. Remember that local employees may be focused on their families and damage to their homes or other personal property. Carefully consider hazards during reopening, account for them during planning, and monitor for new or emerging hazards during recovery operations. Hazards can include electrical hazards from downed power lines, a reduction in structural integrity of buildings, piers, or other areas within the shipyard, biological or chemical contaminants, and extreme temperatures. Additionally, limited local resources may be available. Shipyard employers, or their representatives, should:

- Assess the condition of the shipyard facilities, vessels, equipment, and surrounding areas, and document damages.

- Mark and barricade hazard areas. Be particularly careful of fallen electrical lines and leaking fuel. Deploy containment equipment for liquid spills when necessary.
- Based on the assessment of hazards, provide workers with the appropriate personal protective equipment, training, and information to perform work safely.
- Determine the priorities for returning the shipyard to an operational state, including what needs to be repaired and a schedule for completing the work.
- Contact local or state agencies regarding the necessary permit requirements for rebuilding.
- Determine if any areas of the emergency action plan need improvement.

Adapting Severe Weather Protocols and Procedures for Future Incidents

Emergency action plans should be living documents that are updated regularly based on lessons learned from exercises and actual events. In addition to regularly reviewing and updating emergency action plans, it is important that all workers are trained in their practices and procedures so that they know what to do if an emergency occurs. Employers must review the emergency action plan with each covered employee when it is developed or changed, upon each employee being initially assigned to a job, and whenever the employee's responsibilities change (29 CFR 1910.38(f)). Training should include an opportunity for personnel to practice implementing the emergency action plan. Employers must also designate and train employees to assist in the safe and orderly evacuation of other employees (29 CFR 1910.38(e)).

Additional Resources:

- Occupational Safety and Health Administration
  - » Emergency Preparedness and Response
  - » Line Handling Safety Fact Sheet
  - » General Preparedness and Response: Getting Started
  - » How to Plan for Workplace Emergencies and Evacuations
- U.S. Coast Guard Resources:
  - » Navigation Center Port Status
  - » Coast Guard Emergency Management
  - » Maritime Safety Alert – Unexpected Heavy Weather Dangers
- U.S. Navy Heavy Mooring Criteria
- Maritime Emergency Response Guide
- Severe Weather Planning Information for Maritime Stakeholders
- NOAA Hurricane Preparedness – Guidelines for Marinas

How to Contact OSHA

OSHA's mission is to assure America's workers have safe and healthful working conditions free from unlawful retaliation. For more information, visit osha.gov or call OSHA at 1-800-321-OSHA (6742).

OSHA® Occupational Safety and Health Administration

This is one in a series of informational fact sheets highlighting OSHA programs, policies or standards. It does not impose any new compliance requirements. For a comprehensive list of compliance requirements of OSHA standards or regulations, refer to Title 29 of the Code of Federal Regulations. This information will be made available to sensory-impaired individuals upon request. The voice phone is (202) 693-1999.

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