

Process Safety lessons from a ship fire

April 2022



On July 12, 2020, a fire broke out on the US Navy ship USS Bonhomme Richard while it was docked in San Diego, California. The fire burned for 5 days and spread to 11 of the 15 decks of the ship. Temperatures from the fire exceeded 1400 °F (760 °C). The financial loss was more than 3 billion dollars, and the ship was decommissioned.

Following the fire, the US Navy conducted a study of 15 fires which had occurred in ships over a 12-year period prior to the *Bonhomme Richard* fire. This study identified multiple recurring causal factors, both in how the fires started, and how they escalated. Several of the causal factors in the Navy ship fires are also potential causes for a fire, or for a fire to grow into a more severe incident, in the process industries.

Reference: "Major Fires Review Executive Summary, Commander, U. S. Fleet Forces Command and Commander, US Pacific Fleet, July 15, 2021 (Release October 19, 2021). <https://www.documentcloud.org/documents/21089015-for-release-major-fires-review-19-oct-21>

Did You Know?

Some findings from the US Navy investigation which are relevant to process industry plants include:

- Unauthorized materials were brought onto the ship.
- Combustible and hazardous materials were handled and stored improperly.
- Procedures were not followed, and inspection programs were ineffective.
- Excessive amounts of combustible and hazardous materials were stored in portable containers with no recognition of the fire risk.
- There was no comprehensive review, approval or oversight of hot work, and there was no temporary fire protection or fire response plan in place.
- Personnel were not proficient in the use of fire detection and suppression systems and emergency communications equipment.

What Can You Do?

- If your plant handles flammable, combustible, or other hazardous materials in portable containers, always store the containers in properly designated areas which are compliant with regulations and standards for storage of those materials.
- Return unused material in containers to designated storage areas immediately when you determine they are no longer needed in the production area.
- Rigorously follow your plant procedures for hot work and other work which requires a permit.
- Review other Beacons which discuss hot work (6/2018, 5/2020, 8/2020, 8/2021, 3/2022, search www.aiche.org for "Beacon").
- Participate in emergency drills and report any issues you observe during the drills so that emergency procedures can be improved.
- If your plant has not had an emergency drill recently suggest that one be conducted.
- Skim through the referenced US Navy report and look for other lessons relevant to your plant.

Look for process safety lessons in the news!