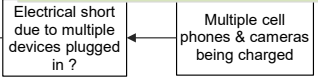


Case Study: Conception Dive Boat Maritime Disaster

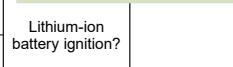
On Sept. 2, 2019, the worst maritime disaster in California since 1865 occurred off the coast of Santa Cruz Island. The MV Conception dive boat caught fire and sank, killing 33 passengers and one crew member on board. The fire began in the salon, and because of the layout of the boat and a blocked escape hatch, the below-deck passengers were trapped. The crew's sleeping quarters were on the top deck, with the passengers below deck. Once awakened by the fire, the crew couldn't get below deck and were forced to jump overboard after placing the initial mayday call. Five crew members, including the captain, survived.

To better understand how this tragedy occurred, we used the Cause Mapping® method of root cause analysis to break out the cause-and-effect relationships within the incident.

Possible Solution: On Sept. 10, 2019, the Coast Guard issued Marine Safety Information Bulletin (MSIB) 008-19, immediately advising owners, operators and masters of passenger vessels to limit "the unsupervised charging of lithium-ion batteries and extensive use of power strips and extension cords."



Possible Solution: Utilize fireproof box for all unattended charging of cell phones.



Evidence: Lithium-ion batteries have a known and documented history of initiating accidental fires.

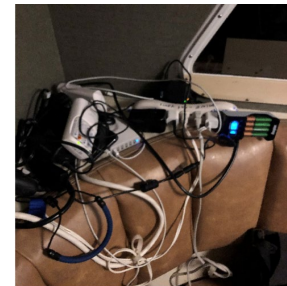
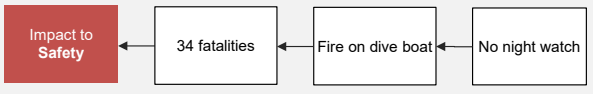
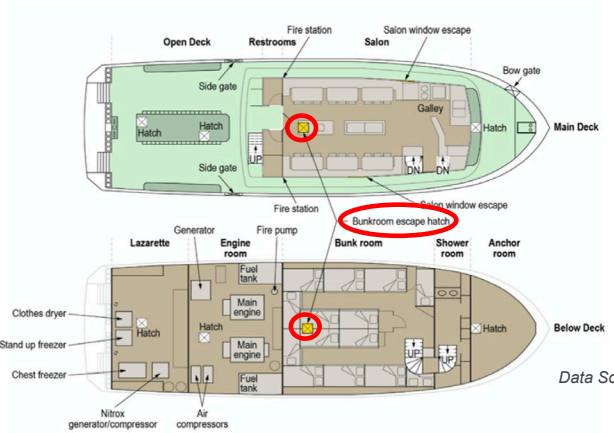
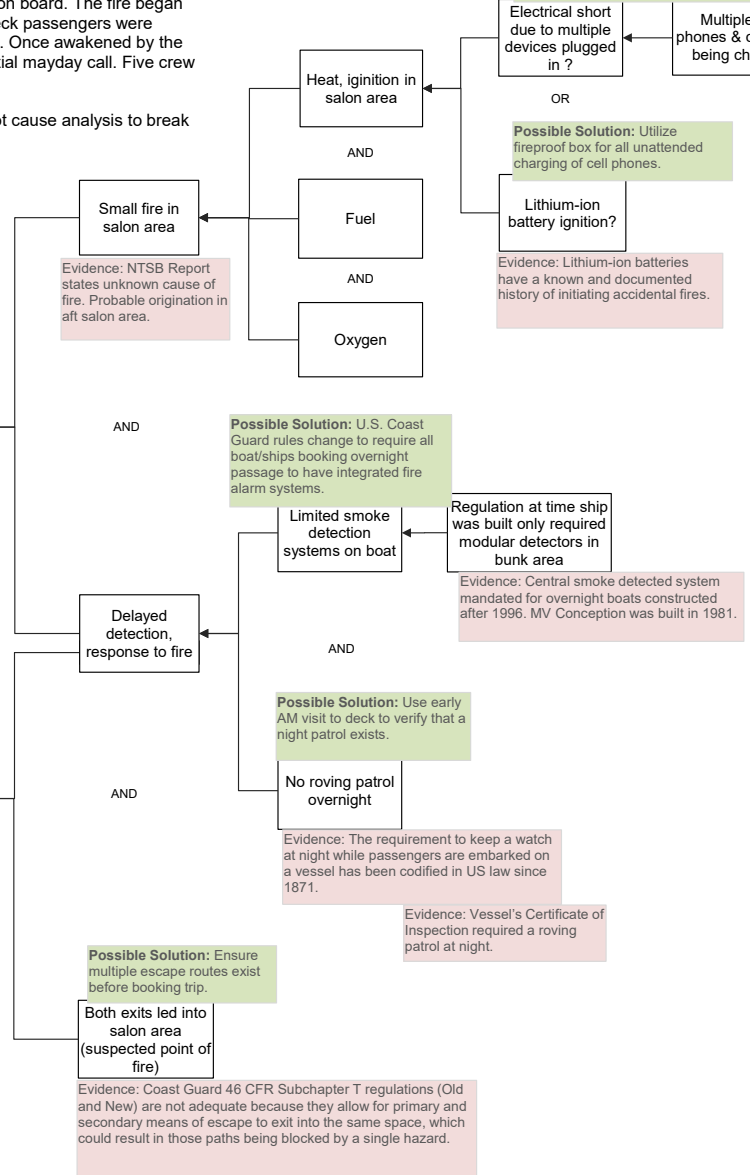
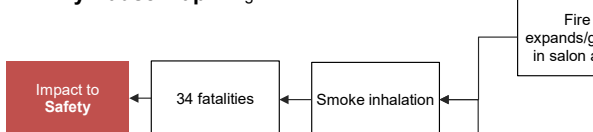


Figure 8. Photo taken during accident voyage (August 31, 2019) of devices plugged in to charge at the port side aft corner of the salon on the Conception. (Source: J. Dignam).

3-Why Cause Map™ Diagram



17-Why Cause Map™ Diagram



Data Source: NTSB Report <https://www.nts.gov/investigations/AccidentReports/Reports/MAR2003.pdf>

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Cause Mapping® Method

Problem Solving • Root Cause Analysis

