

Maritime Near Miss Reporting

Brian Craig, PhD, PE, CPE

**Department of Industrial Engineering
at Lamar University**



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Agenda

- Introduction
- Barriers to Near Miss Reporting
- Sample of Near Miss statistics
- Summary of survey of how companies are implementing near miss reporting systems
- Final thoughts
- Questions/Additional Discussion

Introduction

- Mariner Personal Safety (Near Misses and Injury Reporting) Project with ABS
 - ~75,000 near miss and ~14,000 injury records
 - 29 industry partners
- Safety Culture and Leading Safety Indicators Project with ABS
 - 6 companies representing
 - 224 ships
 - 4,708 shipboard crew
 - 271 shoreside staff

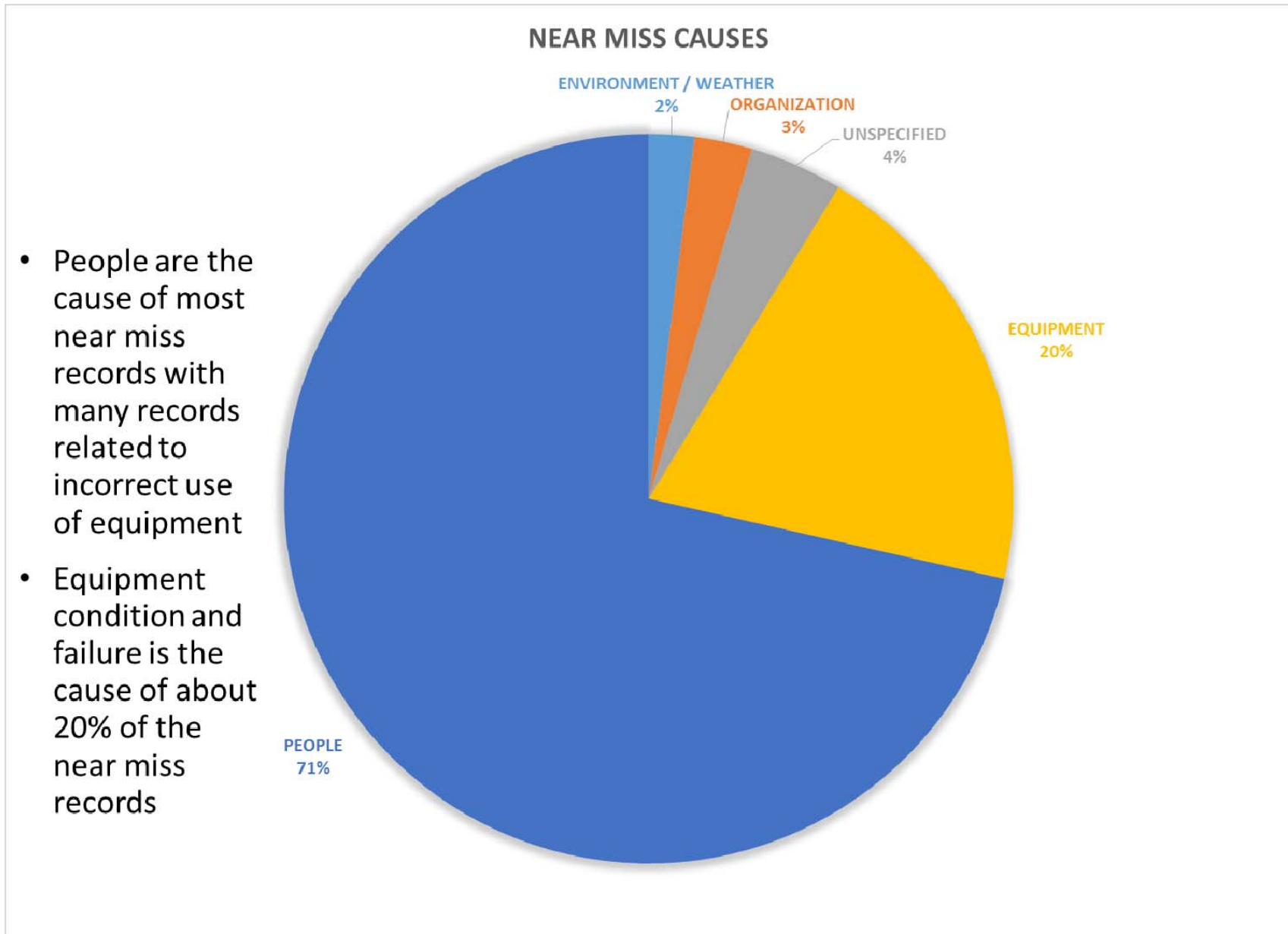
Common Barriers to Near Miss Reporting

- Lack of consistency of NM definition
- Employees lack adequate near miss training
- Employees not being fully engaged in the development and operation of the near miss reporting system
- Employees fear some type of reprimand or discipline
- Employee lack adequate motivation to report near misses or even disincentives

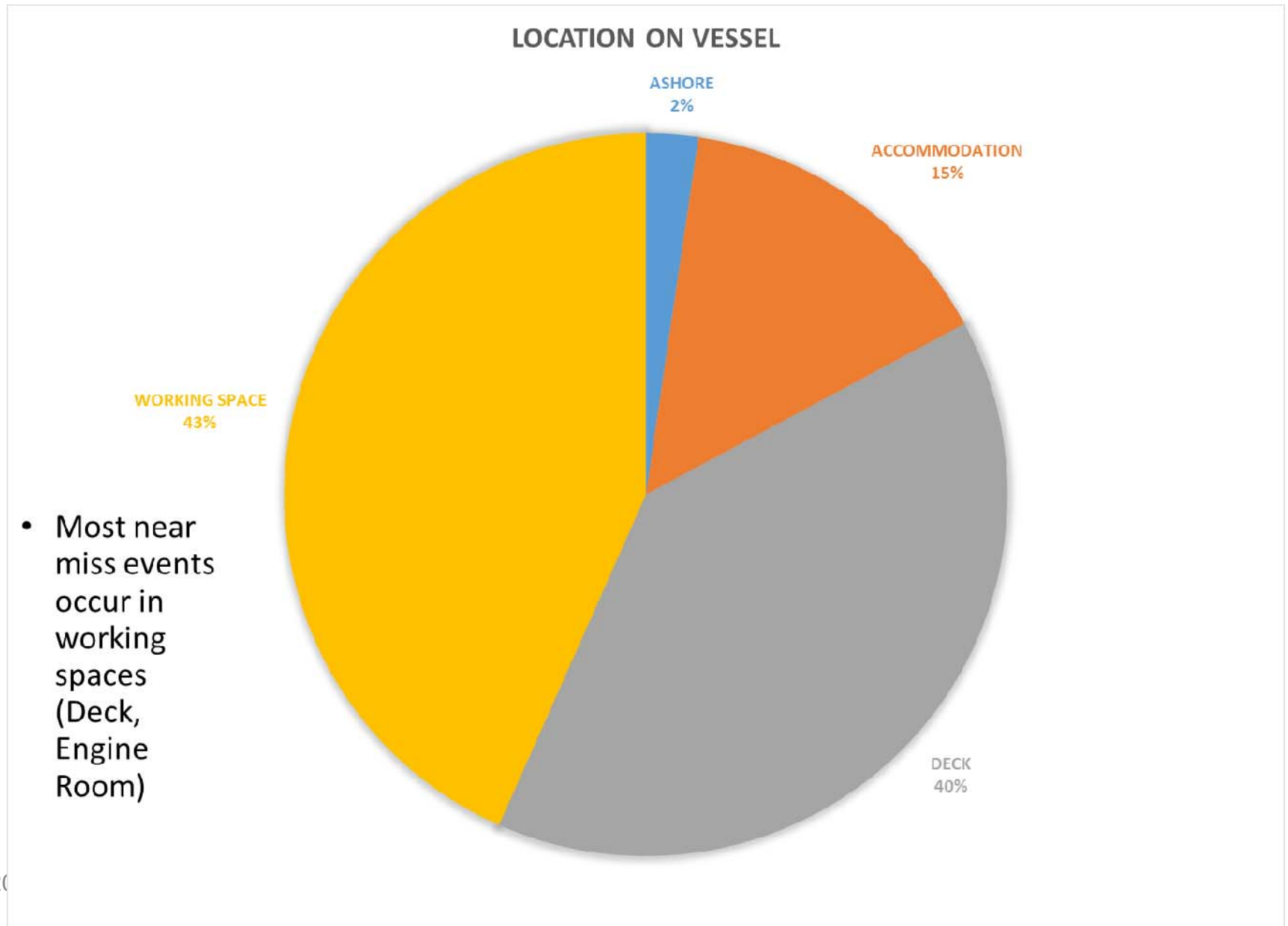
Common Barriers to Near Miss Reporting

- The NMRS is viewed as overly time consuming
- At this time, in many areas around the globe near miss reporting is not mandatory
- Management must provide unwavering support to near miss reporting
- Management cannot fear legal liability or recrimination

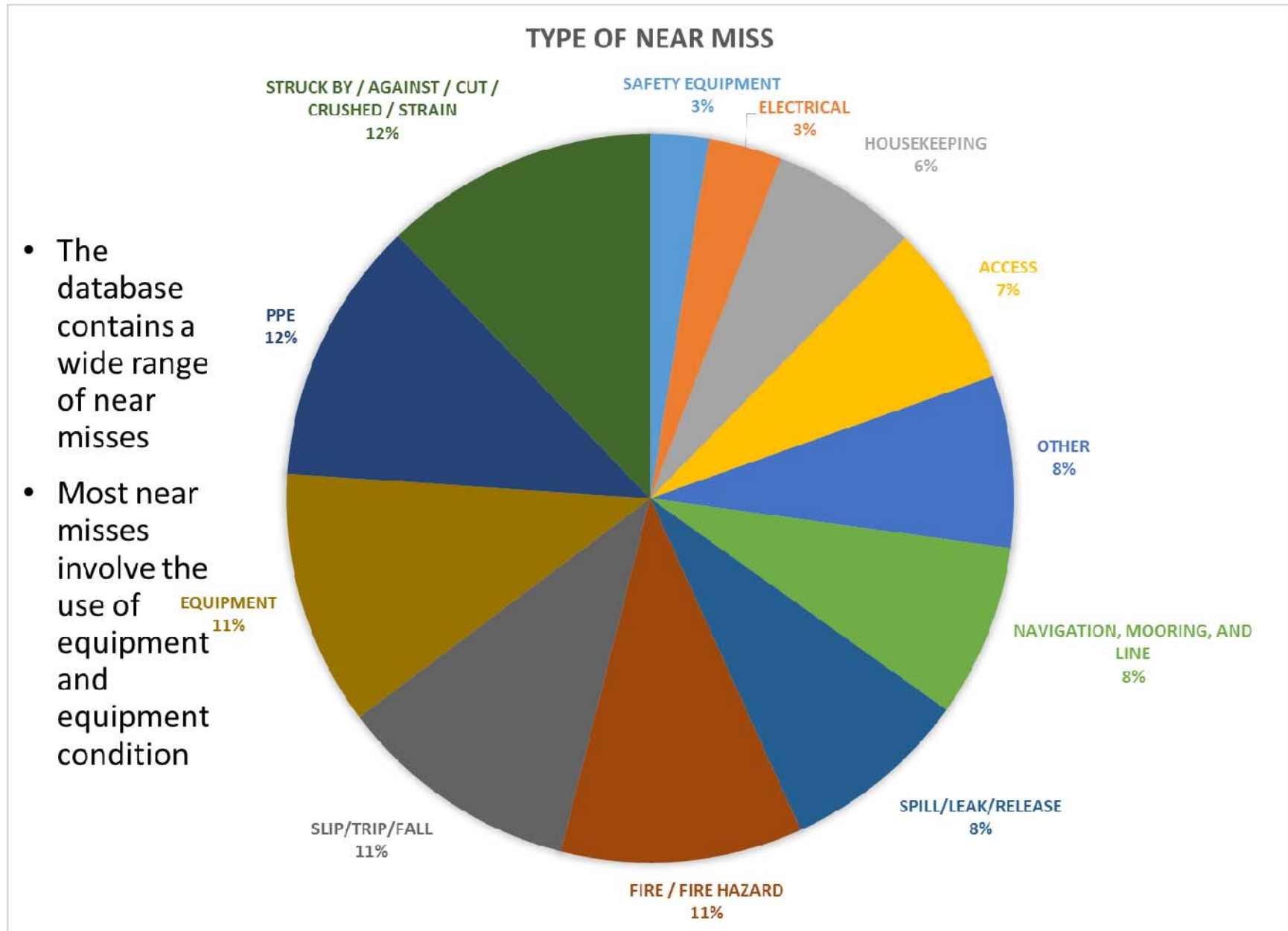
Sample of Near Miss Reporting



Sample of Near Miss Reporting



Sample of Near Miss Reporting



Sample of Near Miss Reporting

- 2,430 types of equipment identified in NM the reports!

Near Miss Events with Potential Vessel Implications

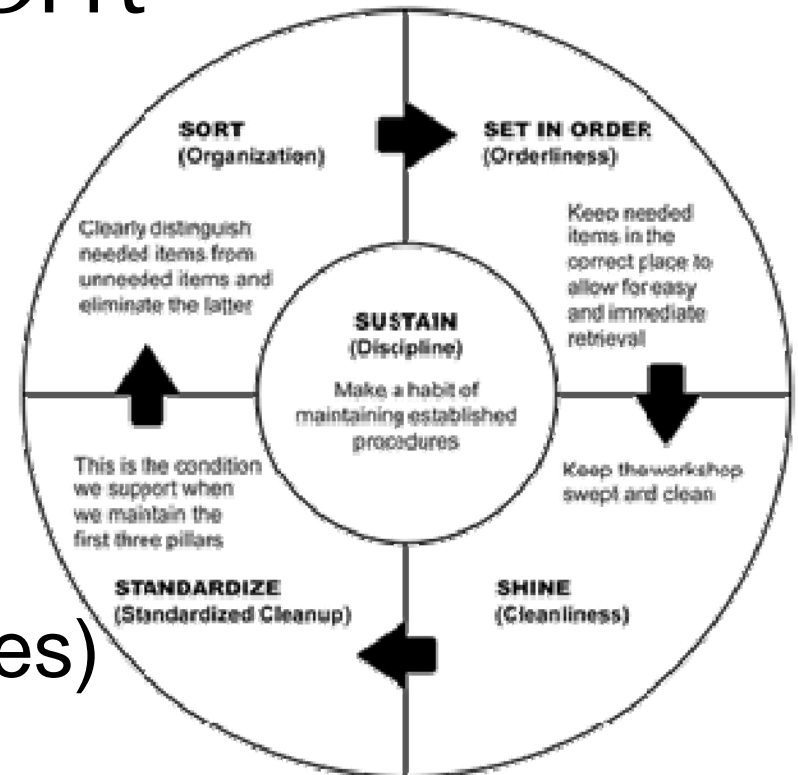
- A significant number of near misses involve major vessel systems as opposed to personal safety and housekeeping

FIRE PROTECTION SYSTEMS	3.04%
FIRE/NEAR FIRE/EXPLOSION	4.79%
BUNKER AND OIL TRANSFER OPERATION	0.20%
LINE HANDING	4.34%
NAVIGATION AND VESSEL MOVEMENT	1.88%
NEAR COLLISION	0.95%
STEERING LOSS/PROPULSION	0.84%
ELECTRICAL	2.00%
ELECTRICAL POWER FAILURE	0.34%
LIGHTING	0.33%
NEAR POWER FAILURE	0.18%
LIFEBOAT ISSUE	1.98%
Total	20.86%

F.O.R.: 0.84% = ~571 NMs
(failure or near failure)

Most Near Misses Involve Equipment

- Equipment Condition
- Equipment Failure
- Incorrect Operation
- Incorrect Repair
- Housekeeping Around Equipment (5S style issues)



- Lets review some of the near misses commonly associated with fuel heaters.

Fuel Heaters

- The database has over 40 records related to fuel heaters. The records cover a range of issues:
 - Equipment failures
 - Stopping equipment prior to work
 - Insulation of pipes.
 - Housekeeping around the heater (especially boiler suits and PPE)
- Several equipment failures occurred immediately after dock repair

Fuel Heater - Equipment Failure

- **Incident**

- Gasket blown on HFO heater
- A major HFO leak in the engine room occurred after a gasket on the lower HFO heater suddenly blew out. To stop the leak the fuel feed and booster pumps were stopped and the quick closing valve for the HFO service tank was activated, this resulted in a black out
- When we opened the HFO heater it could be seen that the gasket was broken in a position where it is difficult to tighten the nuts during assembling, we expect this is why the gasket blew out
- The HFO heaters had just been out for cleaning during dry docking

- **Resolution**

- Suggest better skilled people at the ship yard ({{Noun}} {{Noun}}) to carry out similar jobs in the future
- All bolts will be retightened by vessels crew

HFO=heavy fuel oil

Fuel Heater – Equipment Failure

- Incident

- Cracked pipe found in fuel oil line between booster pumps and fuel oil heaters
- Small leaking had started to occur and further investigation revealed a crack in a small pipe connection for pressure indication
- If this pipe piece had broken off, all A/E and M/E would have been left without fuel pressure leading to a total blackout and loss of propulsion
- Further hot fuel would have been sprayed at high pressure which itself causes a dangerous situation

- Resolution

- Crack properly (probably) occurred due to poor welding from yard
- Pipe has been removed and a new pipe connection has been welded on
- Further pipe has been pressure tested to 20 bar

A/E = aux

M/E = main

Summary – How Companies are Implementing NM Reporting Systems

- Based on 28 survey responses from maritime companies, near miss systems capture a wide range of events and conditions that are tracked at a corporate level
 - 20 (71%) report having a mixture of hazardous conditions and unsafe behaviors in their near miss reporting system in addition to near miss events
 - Most respondents however define near misses in terms of events not conditions
 - Most near miss reports (83%) identify hazardous conditions instead of events
 - 21 (75%) report having company wide totals for near misses and 20 (71%) report that these totals are presented to senior management
 - A smaller percentage of companies report using near miss reporting as part of employee evaluation (8/28 = 29%)

Final Thoughts

- What is a near miss? Many maritime companies in practice define near misses to include hazardous conditions including equipment issues and unsafe acts in addition to events
- Does a wide definition of near misses improve safety?
- Should maintenance issues be reported to near miss system (or to maintenance systems)?
 - By reporting to the near miss system, corporate safety staff can review the event
 - Reporting information in two locations tends to cause confusion
- Should unsafe acts be captured in the HR system instead of near miss reporting?
- ASTM/SOCP
 - DRAFT ASTM Standard for Injury & Illness data collection and reporting
 - DRAFT ASTM Standard for Near Miss collection and reporting
- Disseminating corrective actions and lessons learned

Questions and Additional Discussion



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Thank you!



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