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Safety Alert 17 : Engine Room Fire

What happened ?

An engine room fire onboard a MODU recently caused significant damage. The fire took one hour to bring under control, and a further 3 hours for boundary cooling etc. There were no injuries.

Unsuccessful attempts were made to fight the fire with water; hand-held extinguishers were used to some effect but could not control the fire. The fire was brought under control by dousing with CO2. Boundary cooling was achieved using water cannon from a stand-by boat.

The engine room and its equipment suffered considerable fire damage. The rig will be out of operation for a number of weeks.

What went wrong ?

The cause of the fire is believed to be radiant heat from an uninsulated and cracked exhaust bellows igniting the insulation in the deck head. The insulation was later found to be soiled (loaded with soot and hydrocarbons). The fire spread through the engine room and briefly flashed over to the engine room roof.

Factors that caused the fire to escalate include:

- Availability of flammable material in the engine room, including hydrocarbon contaminated insulation and a wheelie bin.
- Main fire water pumps unavailable once the main generators were shut down.
- The fire in the engine room ruptured the rig-air line. The loss of rig air disabled the emergency fire pump's automatic air primer. It took over 2 hours to manually prime and start the emergency fire pump.
- The rig-air isolation valve for the engine room was in the engine room.
- Some portable fire extinguishers did not function.

Factors that may have led to further escalation of the fire include:

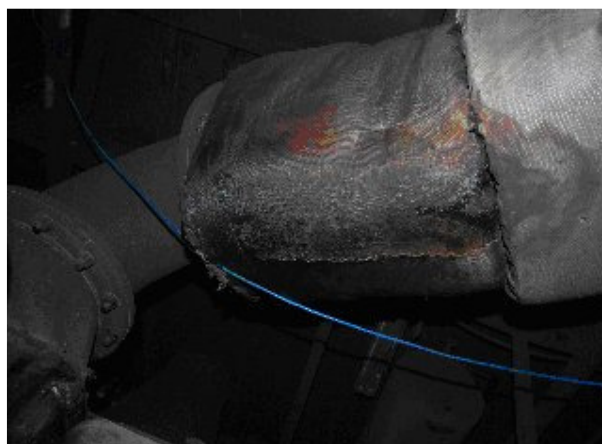
- Bulk lube oil & hydraulic fluid were stored on the engine room roof - a brief flash fire occurred in this area before being extinguished by the support vessel's water cannon.

Key Lessons:

- Engine room fires are a very serious risk. Inspection and maintenance of exhausts, fuel lines, turbochargers & superchargers are critical, including the inspection and replacement of contaminated/damaged insulation. Housekeeping and cleanliness make a difference in reducing risk and damage.
- Provision and testing of emergency equipment is critical (in this case some CO2 cylinders did not activate when required and some portable fire extinguishers did not function). Redundancy in emergency systems can save lives.
- Consideration for facility specific common mode failures and escalation factors (in this case the rig air system).
- The role of stand-by vessels is critical.
- Highlights importance of emergency response for various scenarios. Practice makes perfect.



Above Pictures - Uninsulated and cracked engine exhaust bellow where fire was thought to initiate. Picture to right - Hydrocarbon contaminated insulation on an adjacent engine exhaust bellow. A hole in the pipe was found when the insulation was removed for inspection.



Contact

For further information email:

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and quote Alert 17.

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