

Bulkhead and Deck Fires

What happened?

Case 1 – “Flame-washing” was being conducted to remove welded tie-rods. The deck where the work was being carried out formed a ceiling to the main store. Combustible material had been used as insulation in the deck-head which resulted in a significant fire and explosion.



Fire damage to the main store initiated from “flame washing” on the deck above.

Case 2 – Welding was conducted to fix patches in a corroded and leaking deck. Insulation under the deck was inspected prior to the job; however the combustibility of the insulation material was not recognised. Smoke was seen emerging from cabin roof spaces which triggered the evacuation of accommodation and a general muster.

Fire damage to ceiling space initiated by welding on the deck plate above



Case 3 – A bundle of clean rags in a store was ignited following welding on a deck above.



Typical burnt paint from radiant heat associated with the welding on the main deck above

In each of these cases fire was caused by welding/cutting operations on one side of a deck or bulkhead, and the fire started on the other (hidden) side of the deck.

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What could go wrong?

Fires on offshore facilities can have a devastating effect. In one of these cases two fire-team members were burnt, with one man being hospitalised. Damage to the facility took over 6 weeks to repair.

Fires which start in areas that are unattended, inaccessible or are well secured can grow to a considerable size and cause significant damage before they are detected. Fires offshore will inevitably lead to lost operational time, significant expense and immediate risk to personnel.

Key Lessons

Permit to work systems are only administrative controls. In all the cases described above, permits were in place but failed to prevent the fire.

Control of combustible material is critical. Deck-heads should be inspected prior to any hot-work. The combustibility of all insulation or other material in close proximity to the deck or bulkhead should be clearly established. Insulation fitted during shipyard refits must be inspected to ensure it is not readily combustible.

Appropriate consideration of the requirement for firewatchers both at the work site *and* on the other side of bulkheads and decks should be given during permit preparation.

Fires can smoulder for a significant period after work has ceased and therefore consideration should also be given to making thorough post-job inspections a requirement of the permit.

Who is responsible?

Welding and cutting work will almost always fall under the control of the operator of the facility.

Area authorities / supervisors need to establish if there are combustible material hazards in the area prior to approving permits.

Operators of facilities have a duty of care to ensure safe systems of work. This can be taken to include permit systems; pre-and post work site inspections; adequate and trained fire-watchers; and documented procedures for risk assessment and specific hot-work tasks.

Contact

For further information email alerts@nopsa.gov.au and quote Alert 34.