COMP6441 W1 Tutorial Reading: Deep Water Horizon

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1 Summary of Video

- Many people of many different organisations.
- Due to the bad quality cement, hydrocarbons went through the riser, got to the surface and ignited.
- Understanding what happened helps with what should happen.
- Riser has no control at the surface. All control at Blowout Preventer (BOP) which is 5000 ft away.
- Dynamic position with propellers and motors implies that the vessel needs power at all times.
- The Deepwater Horizon had 126 people who would rotate every 12 hours. This meant that every 12 hours the current group would stop what they're doing and be replaced by the new group who'd have to familiarise themselves with the current situation on board.
- Being so far out in the sea, the sending and receiving of items to the Deepwater Horizon was very difficult.
- Blind sheer ram cuts through the BOP and closes top of the well, causing nothing to further escape the pipe in the case of a problem.
- Buckling of the BOP meant that instead of cleaning cutting and sealing the pipe, the blind sheer ram ended up puncturing the pipe, exacerbating the problem.
- The fluid into the riser must equal the fluid coming out. This means that if something enters the riser, this equilibrium will be disturbed.
- Non-standardised 'negative testing' for the cement. The Deepwater Horizon passed both tests (after inspection from those on board).

What failed	**Result**
Casing and cement failure	Hydrocarbons escaped to the surface
Escaped hydrocarbons not recognised	Hydrocarbons enter the riser
Gas ignited on rig	Fire on rig
BOP failed	Oil spill

Table 1: Series of failures leading to the Deepwater Horizon disaster

- Consequences of the Deepwater Horizon incident:
  - 11 deaths, 17 seriously injured
  - Oil and gas spilling into the Gulf for 87 days

2 Tutorial Question

You are heading the Presidential inquiry into the Deepwater Horizon accident. Provide 4 recommendations with justifications for each. Rank in order of importance.

1. Standardise safety precautions. Outsource the standardised testing - there's no reason the cement test should have passed, unless there was a conflict of interest.
2. Safety measures independent of one another.
3. Overarching, outsourced board that oversees the safety of the rig, workers, and environment.
   (a) Better maintenance. Independent party to be continuously maintaining the safety measures.
   (b) Although likely not viable, occasional training for the staff to standardise and prepare the workers for the worst-case scenario.
4. Implement a strategy for the worst-case scenario. There shouldn't have been 87 days of leakage.

3 Notes

- Bystander principle