

Flixborough Disaster

DATE OF EVENT: 1st June 1974

OUTCOME: 28 Fatalities, 36 injuries

THE CIRCUMSTANCES:

- Normal operations - cyclohexane was heated to 155°C before passing into a series of six reactors.
- Two months prior to the explosion, a leak was found. One of the reactors was bypassed whilst repairs were made.
- In the absence of 28-inch pipe, the temporary bypass pipe was manufactured in 20-inch.

WHAT HAPPENED:

- The temporary bypass pipe ruptured.
- There was a massive release of hot cyclohexane.
- The vapour cloud was ignited, the explosion was equivalent of that to 15t of TNT explosive.
- The site was virtually demolished.
- Of the 72 people at site, 28 were killed, 36 injured.
- It was a weekend and luckily a significantly lower number of staff was onsite.
- Fires burned for ten days. Around 1,000 buildings within a mile radius of the site were damaged, as were nearly 800 buildings three miles away. The blast was heard over thirty-five miles away in Grimsby.

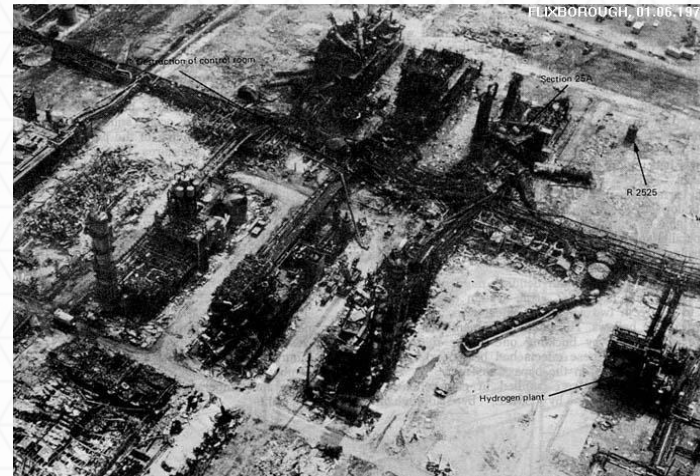
MAH Barriers

Management of Change

- The temporary pipe was not designed by professionally qualified engineers.
- The potential consequences of the bypass using narrower pipework was not assessed.
- The temporary pipe was not pressure tested.
- Pressure was not accounted for in the design.

Equipment Layout

- 18 of the 28 personnel killed were in the control room when the roof collapsed. The building was located next to the process and was not designed to withstand an explosion.



7Cs Discussion Points

- **Competency** – How do you ensure your team are suitably trained/experienced to carry out the task?
- **Change Management** – How do you manage equipment and process changes?

