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# The Hickson and Welch Explosion of 1992

## Description

The Hickson and Welch explosion in 1992 was a catastrophic event at a chemical plant in Castleford, West Yorkshire, England. This tragic incident resulted in the deaths of five workers and injuries to around 200 people, leaving a lasting impact on the community and the chemical industry.

## Incident Overview

On September 21, 1992, at approximately 1:20 PM, a devastating explosion occurred at the Hickson and Welch Ltd chemical plant. The incident took place during a clean-out operation of a batch still known as '60 still base' which had not been cleaned since its installation in 1961. Workers were attempting to remove residues from the still, which contained nitrotoluene, a highly reactive and potentially dangerous chemical. The sludge inside was mistakenly thought to be thermally stable.

The cleaning process involved applying steam to soften the sludge, followed by manual removal using a metal rake. Approximately one hour into the process, a longer rake was used, and the vessel's temperature gauge read 48°C. Suddenly, a blue light turned into an orange flame, leading to a jet of burning vapors erupting from the manhole. This jet fire lasted for about a minute, causing extensive damage to the plant and nearby structures.

## Who Was Involved

The explosion resulted in the tragic loss of five workers' lives: David Wilby, George Potter, Neil Gafney, John H, and Sara Atkinson. These individuals were directly involved in the cleaning operation and were unable to escape the sudden and intense fire. Additionally, around 200 people were injured, with some suffering severe burns and other injuries. The incident not only affected the workers directly involved but also had a significant impact on the surrounding community and the families of those who were injured or killed.

## Outcome

The explosion caused significant damage to the plant and nearby buildings. The force of the jet destroyed the scaffold and severely damaged the Meissner control building. The company was found to have made fundamental errors and incorrect assumptions, leading to the incident. Legal proceedings resulted in Hickson and Welch Ltd being fined £250,000 with £150,000 in costs awarded against them. The investigation revealed that the company had failed to properly assess the risks associated with the cleaning operation and had not implemented adequate safety measures to protect the workers.

## Key Lessons

The Hickson and Welch explosion underscores the critical importance of proper maintenance and

regular cleaning of equipment. The incident highlighted the necessity of thorough risk assessments and monitoring of chemical reactions to prevent such disasters. Additionally, the event emphasized the critical role of emergency preparedness and effective communication in preventing and responding to industrial accidents.

1. **Proper Maintenance:** Regular cleaning and maintenance of equipment are essential to prevent the buildup of hazardous materials. The failure to clean the 60 still base for over three decades contributed to the severity of the explosion.
2. **Risk Assessments:** Thorough risk assessments must be conducted before any operation involving hazardous materials. The incorrect assumption that the sludge was thermally stable led to the catastrophic outcome.
3. **Emergency Preparedness:** Effective emergency response plans and training for workers can mitigate the impact of industrial accidents. The lack of preparedness contributed to the high number of casualties and injuries.
4. **Communication:** Clear and effective communication between workers and management is crucial in identifying and addressing potential hazards. The incident highlighted the need for better communication and coordination during high-risk operations.

The Hickson and Welch explosion serves as a stark reminder of the importance of stringent safety protocols and regular equipment maintenance to prevent industrial accidents. The lessons learned from this tragic event continue to inform safety practices in the chemical industry and beyond.

## CATEGORY

1. Yorkshire

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6. Industrial safety
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