

The Bhopal Gas Disaster

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Introduction

The Bhopal gas disaster was a very bad chemical accident that happened in December of 1984. It happened at the Union Carbide India Limited pesticide plant in Bhopal Madhya Pradesh, India. The Bhopal disaster was considered the largest industrial disaster known to man. A very toxic gas, methyl isocyanate, was released during this disaster. Over 500,000 people were exposed to this gas. There was an estimated around 15,000 to 20,000 deaths from this gas disaster¹



History of the Disaster

On December 3rd, 1984, the Bhopal Gas Disaster took place. More than 40 tons of a gas called methyl isocyanate leaked from a pesticide plant that was in Bhopal, India. This gas spill killed around 3,800 people instantly as it came out from the plant.¹ This disaster caused premature death for many people as well. The company that was involved with this disaster tried to disassociate themselves from having anything to do with it as soon as possible. They did not want to own up to what they did, especially knowing the legal trouble they got themselves into. In the end, the company ended up paying \$470 million in compensation, which was considered to be a relatively low number considering this was the largest industrial disaster known to man.¹

Aftermath

- UCC was sued in Federal court⁶
- UCC agreed to pay a \$5 million settlement⁶
- The Indian government rejected this offer, and claimed \$3.3 billion⁶
- UCC agreed to pay \$470 million in damages⁶
- The CEO, Warren Anderson, was charged with manslaughter⁶
- He refused to appear in court, later died in 2014 without appearing in court and nothing happened⁶

Case Study

- **Where:** Union Carbide India Ltd pesticide facility, Bhopal, India⁶
- **When:** December 2-3, 1984⁶
- **What happened:** Very large leak of a gas called Methyl isocyanate (MIC)⁶
- **Who was affected:** 500,000 people⁶
- **Issues caused from disaster:** Chronic eye difficulties, respiratory problems, stunted growth, cognitive impairments, death⁶

UCIL was the pesticide plant that produced an insecticide called carbaryl. Carbaryl was discovered by the American company Union Carbide Corporation or UCC. UCC owned a very big share in UCIL. This Carbaryl was produced using MIC.⁶

Reasons for Gas Leak:

- Before the spill happened, the plants safety mechanism for the MIC was not working⁶
- Lots of valves and lines were in disrepair, vent and gas scrubbers not working⁶
- One of the tanks had more than it was supposed to hold⁶
- Water entered the overloaded tank through a side pipe, causing an exothermic reaction in the tank which progressively rose the pressure until the gas was released⁶

Effects of the Gas Leak:

- Thousands died from choking, pulmonary edema, and reflexogenic circulatory collapse⁶
- Neonatal death rates rose by 200%⁶
- A very large number of animal carcasses were discovered in the area⁶
- Many trees died⁶
- Fishing was prohibited⁶
- Hospitals were overcrowded, and the workers didn't have sufficient training in dealing with MIC exposure⁶

How it started

- In the 1970s, the Indian government had a plan to initiate policies that encouraged foreign companies to invest in their local industries.¹
- A company called Union Carbide Corporation (UCC) was asked to build a pesticide plant. The manufactured a pesticide called Sevin, which was commonly used throughout Asia.¹
- The night of December 2nd, 1984, an operator at the plant noticed a very small leak of methyl isocyanate gas (MIC) and the pressure increasing inside of the storage tank.¹
- A faulty valve had allowed 1 ton of water, that was used for cleaning internal pipes, to mix with 40 tons of the methyl isocyanate.¹
- There was a 30-ton refrigeration unit that was normally used for cooling the MIC storage tank.¹
- The Tank had been drained of all the coolant to be used in a different part of the pesticide plant. The pressure and heat from the exothermic reaction in the tank then continued to build up.¹
- The gas flare safety system had been out of action for around 3 months. At 1 am on December 3rd, there was a loud rumbling noise that reverberated around the plant as a safety valve malfunctioned and sent a large amount of MIC gas into the air.¹
- Within a few hours, the streets were laid out with human corpses, buffaloes, cows, dogs, etc.¹
- An estimated 3,800 people died immediately.¹



References

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