



**1911
NYC**



**1919
Boston**



**1984
Bhopal**



**2008
Georgia**

Tragedies that Forever Changed Safety In The Workplace

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DEADLIEST WORKPLACE ACCIDENTS TIMELINE

January 10, 1860

The Pemberton Mill Collapse
Lawrence, Massachusetts



December 6, 1907

Monongah Mining Disaster
Monongah, West Virginia



January 15, 1919

Great Molasses Flood
Boston, Massachusetts



October 20, 1944

East Ohio Gas Explosion
Cleveland, Ohio



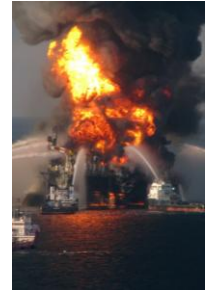
December 2, 1984

The Bhopal Disaster
Bhopal, Madhya Pradesh, India



April 20, 2018

Deepwater Horizon Oil Spill
Gulf of Mexico



May 2, 1878

Washburn Mill Explosion
Minneapolis, Minnesota



March 25, 1911

Triangle Shirtwaist Fire
New York City, New York



July 17, 1944

Port Chicago Explosion
Port Chicago, California



April 16, 1947

S.S. Grandcamp Explosion
Texas City, Texas



February 26, 1972

Pittston Coal Co Dam Burst
Buffalo Creek, West Virginia



February 7, 2008

Imperial Sugar Dust Explosion
Port Wentworth, Georgia

July 17, 1944

Port Chicago Explosion

Port Chicago, California

400 Injured

320 Fatalities

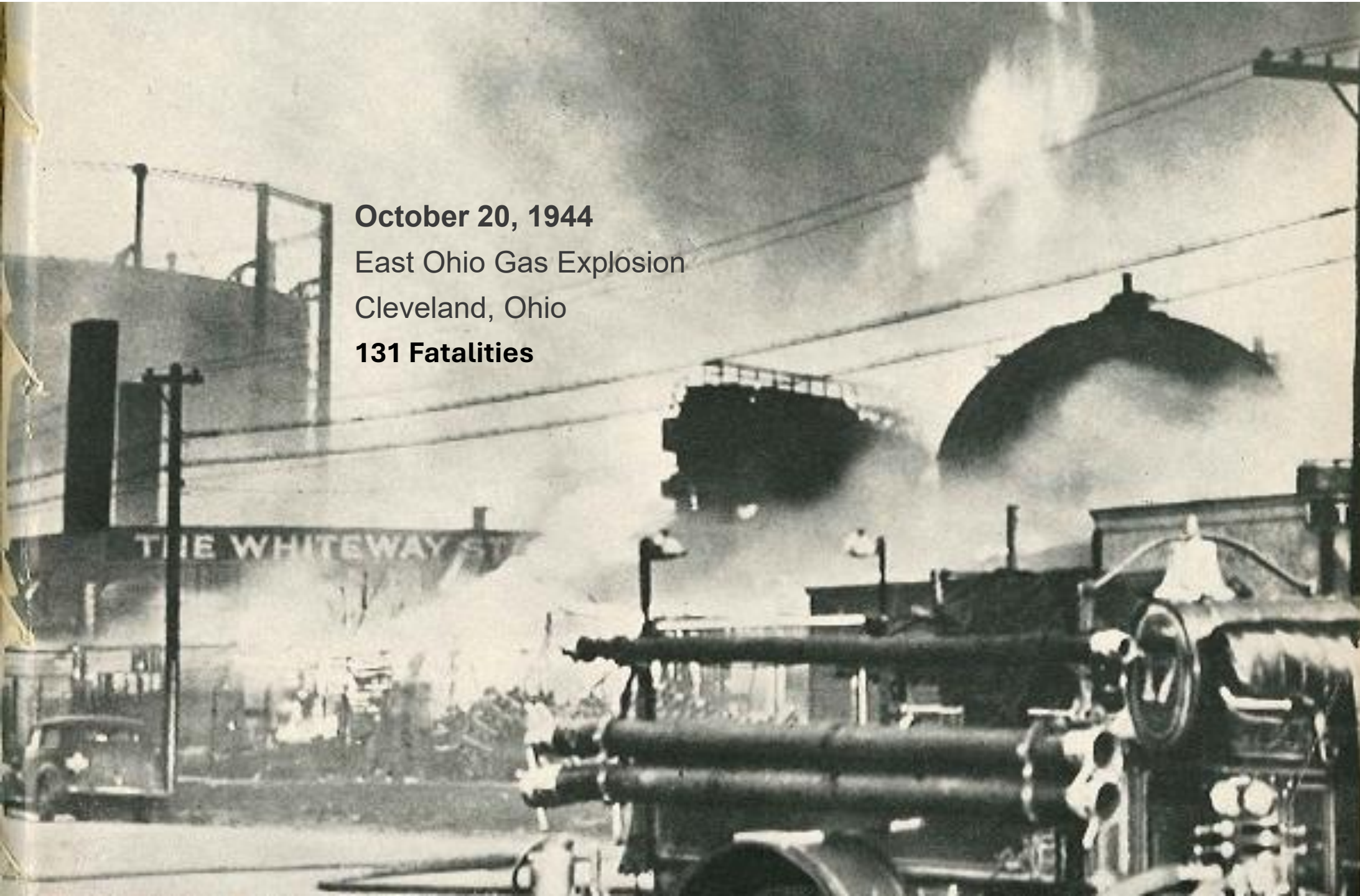


October 20, 1944

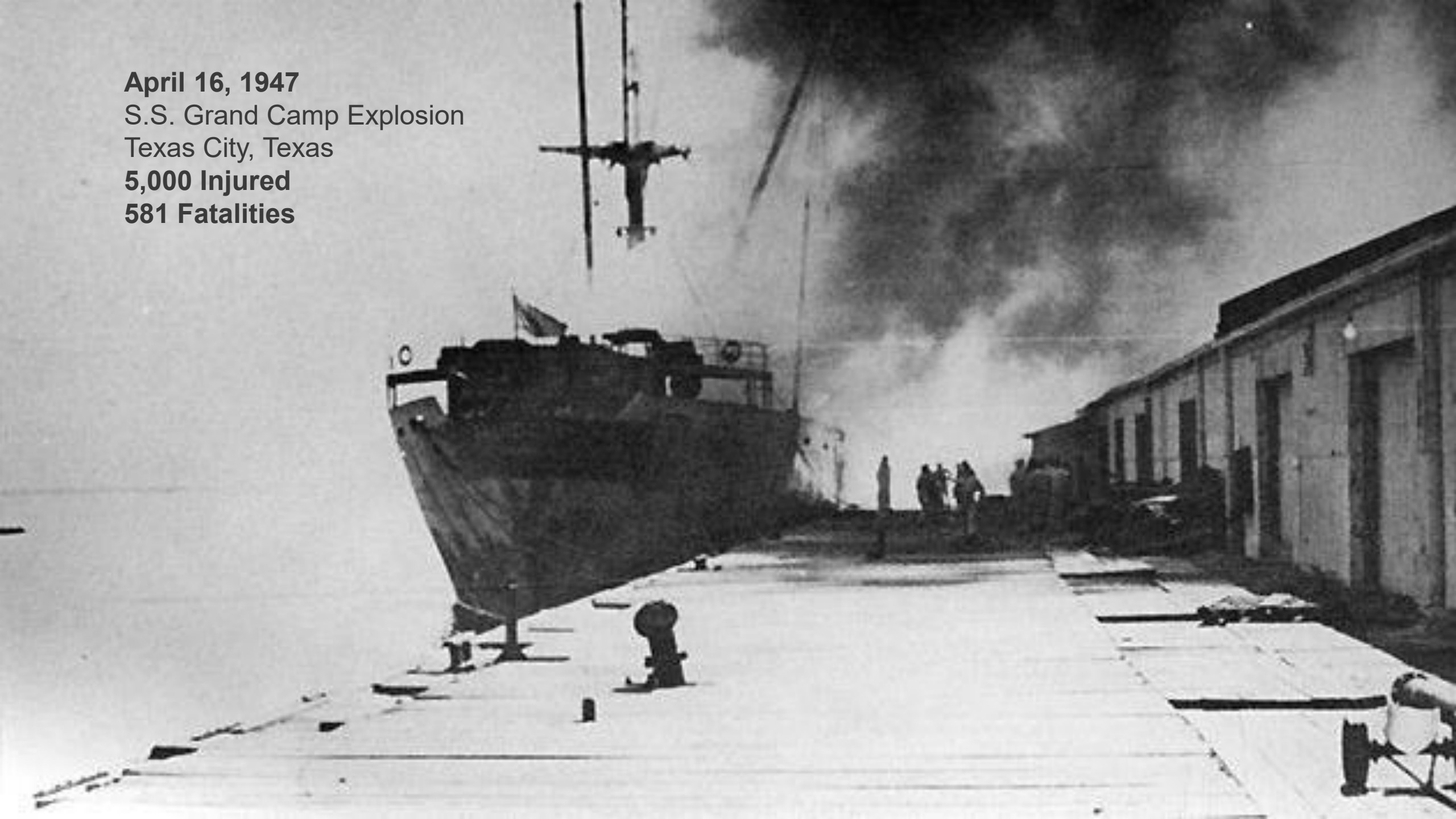
East Ohio Gas Explosion

Cleveland, Ohio

131 Fatalities



April 16, 1947
S.S. Grand Camp Explosion
Texas City, Texas
5,000 Injured
581 Fatalities



February 26, 1972

Pittston Coal Co. Dam Burned

Buffalo Creek, West Virginia

4,000 Homeless

125 Fatalities



December 2, 1984

The Bhopal Disaster

Bhopal, Madhya Pradesh, India

Estimated 2,500 Immediate Fatalities

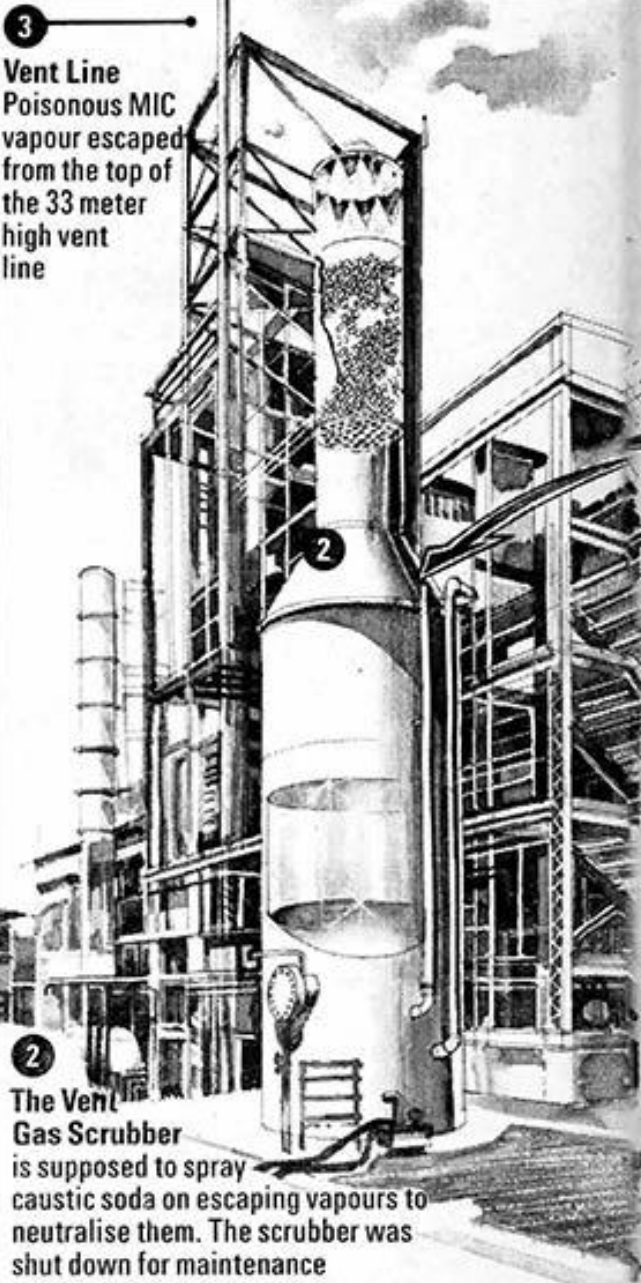
Somewhere between 15,000 – 25,000

Fatalities Attributed to MIC Leak

A photograph of the Union Carbide factory in Bhopal, India. The image shows a large, dark sign with the words "UNION CARBIDE" in white, bold, capital letters. The sign is mounted on a concrete structure. In the background, there is a complex industrial facility with multiple levels of metal scaffolding, pipes, and a red crane arm. The sky is overcast and grey. A street lamp is visible in the foreground on the left side of the frame.

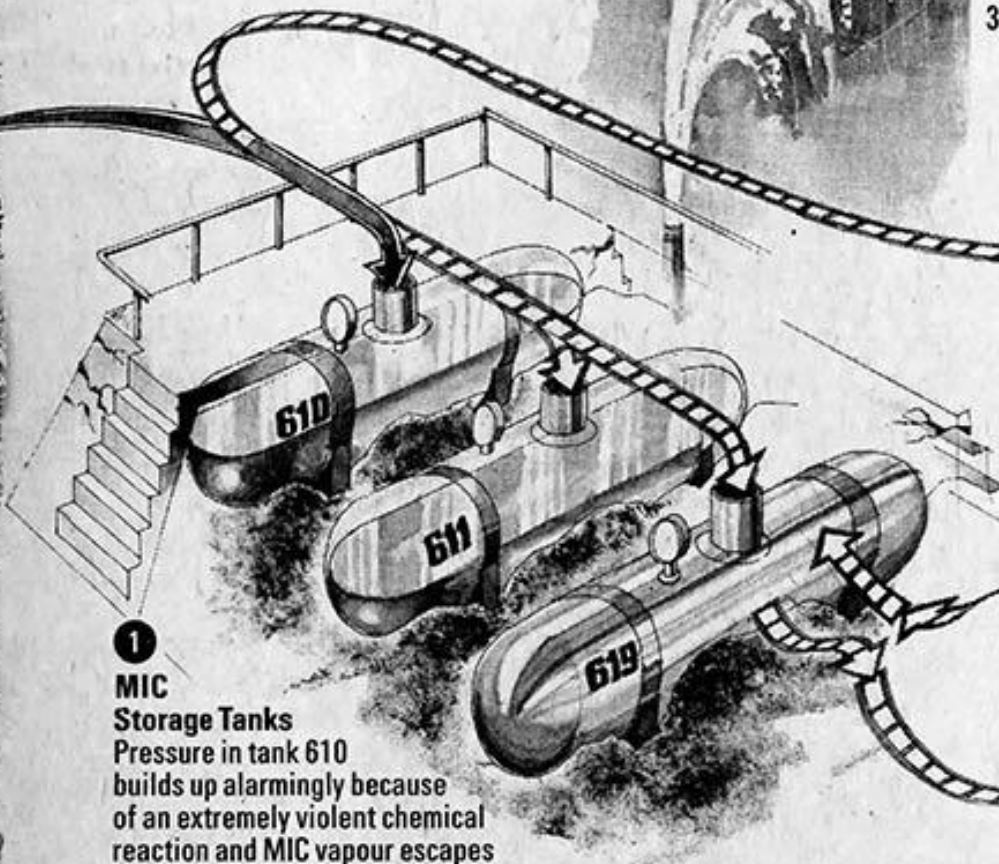
**UNION
CARBIDE**

The Fail-Safe Failure



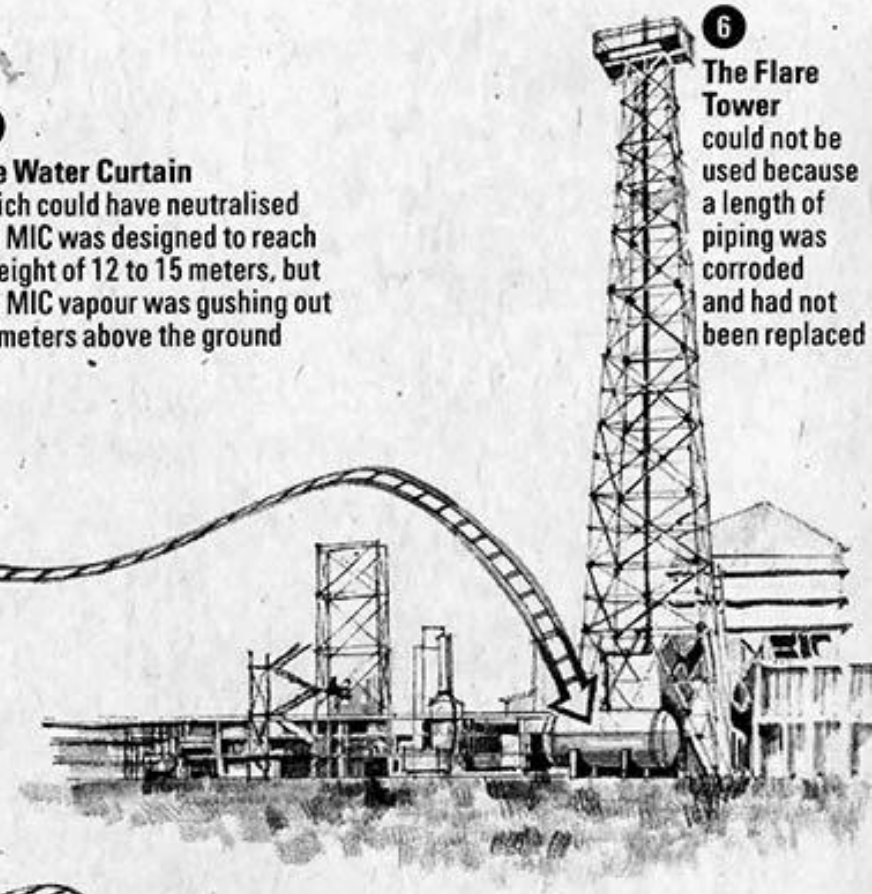
3 Vent Line
Poisonous MIC vapour escaped from the top of the 33 meter high vent line

2 The Vent Gas Scrubber is supposed to spray caustic soda on escaping vapours to neutralise them. The scrubber was shut down for maintenance



1 MIC Storage Tanks
Pressure in tank 610 builds up alarmingly because of an extremely violent chemical reaction and MIC vapour escapes rupturing a safety disc and popping the safety valve. Tank 619 was empty but nobody opened the valves between the two tanks to relieve pressure in 610.

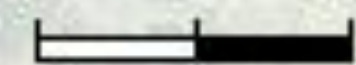
5 The Water Curtain which could have neutralised the MIC was designed to reach a height of 12 to 15 meters, but the MIC vapour was gushing out 33 meters above the ground



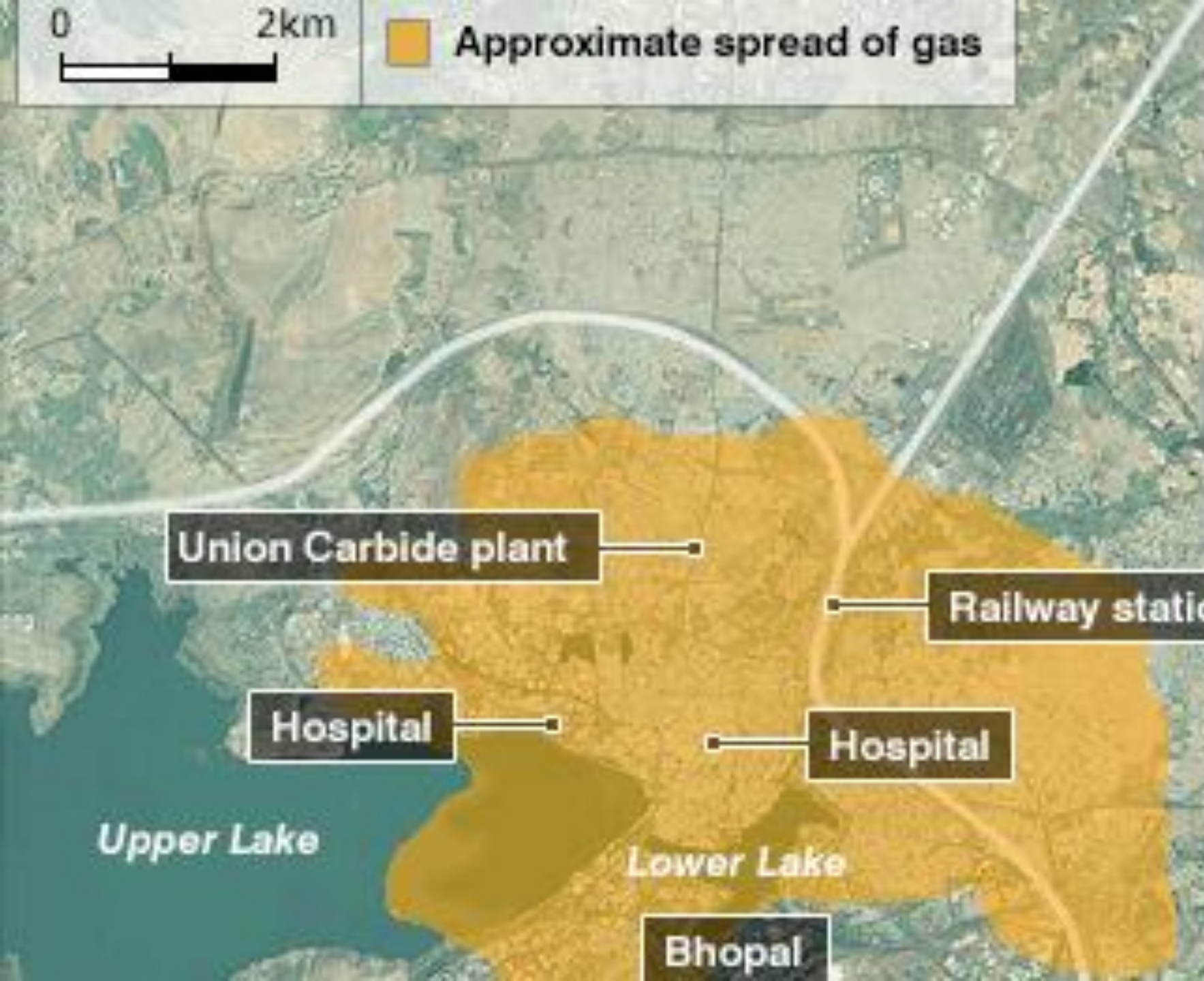
6 The Flare Tower could not be used because a length of piping was corroded and had not been replaced

4 The Refrigeration System keeps MIC cool but was out of commission and tank 610 could not be cooled to slow down the reaction

0 2km



Approximate spread of gas



Union Carbide plant

Railway station

Hospital

Hospital

Upper Lake

Lower Lake

Bhopal



Delhi

Bhopal

MADHYA PRADESH

INDIA

February 7, 2008

Imperial Sugar Dust Explosion

Port Wentworth, Georgia

36 Injured

14 Fatalities



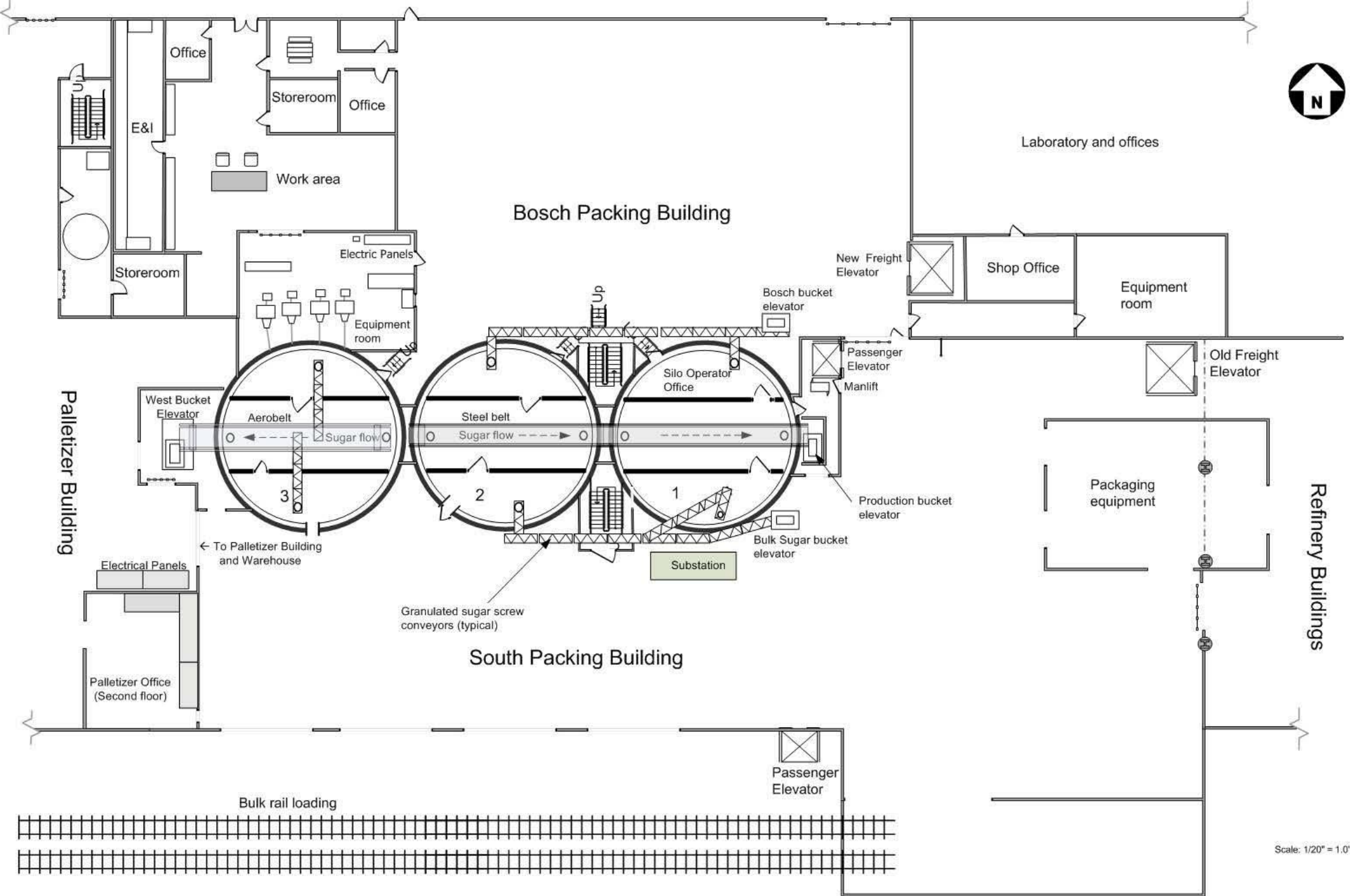
IMPERIAL SUGAR REFINERY



Killed 14 People

Injured 36 People

Port Wentworth, Georgia



Bosch Packing Building

South Packing Building

Palletizer Building

Refinery Buildings

Laboratory and offices

Shop Office

Equipment room

Old Freight Elevator

Packaging equipment

Passenger Elevator

Bulk rail loading

Palletizer Office (Second floor)

Electrical Panels

To Palletizer Building and Warehouse

Granulated sugar screw conveyors (typical)

Substation

Bulk Sugar bucket elevator

Production bucket elevator

Manlift

Passenger Elevator

Bosch bucket elevator

Up

Electric Panels

Equipment room

Work area

Storeroom

Office

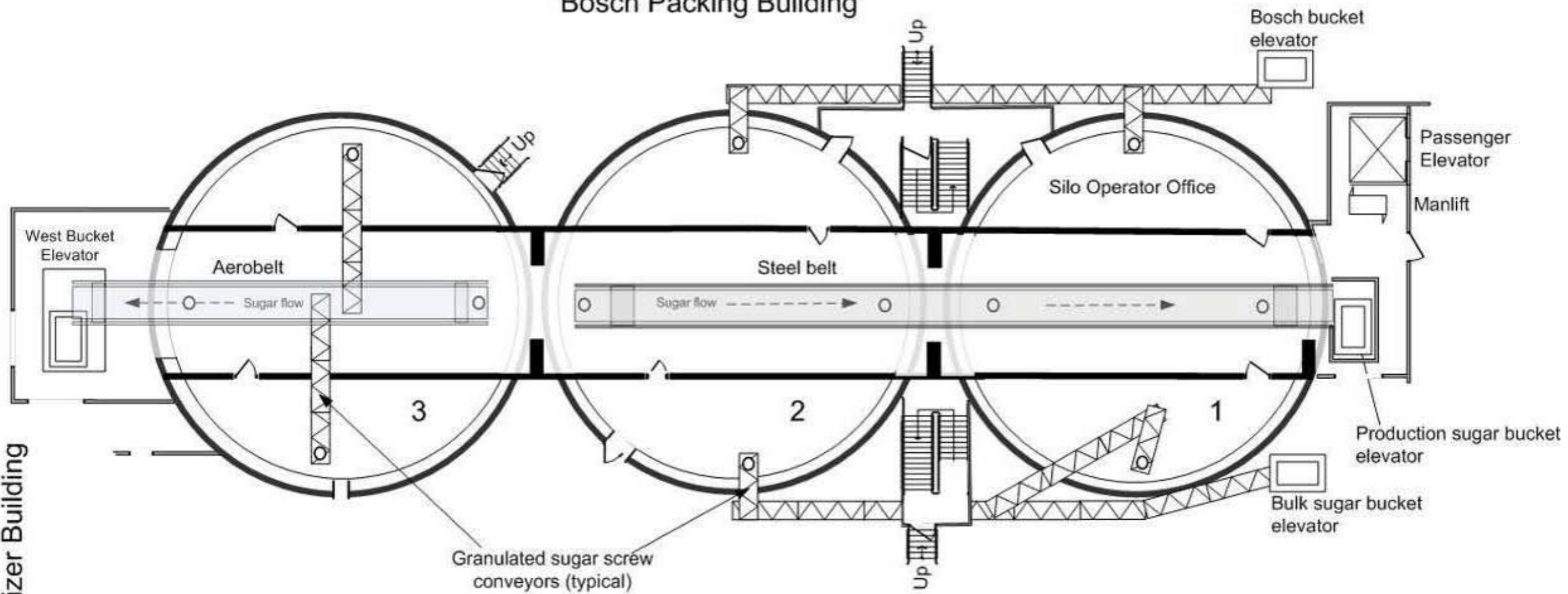
E&I

Storeroom

Scale: 1/20" = 1.0'



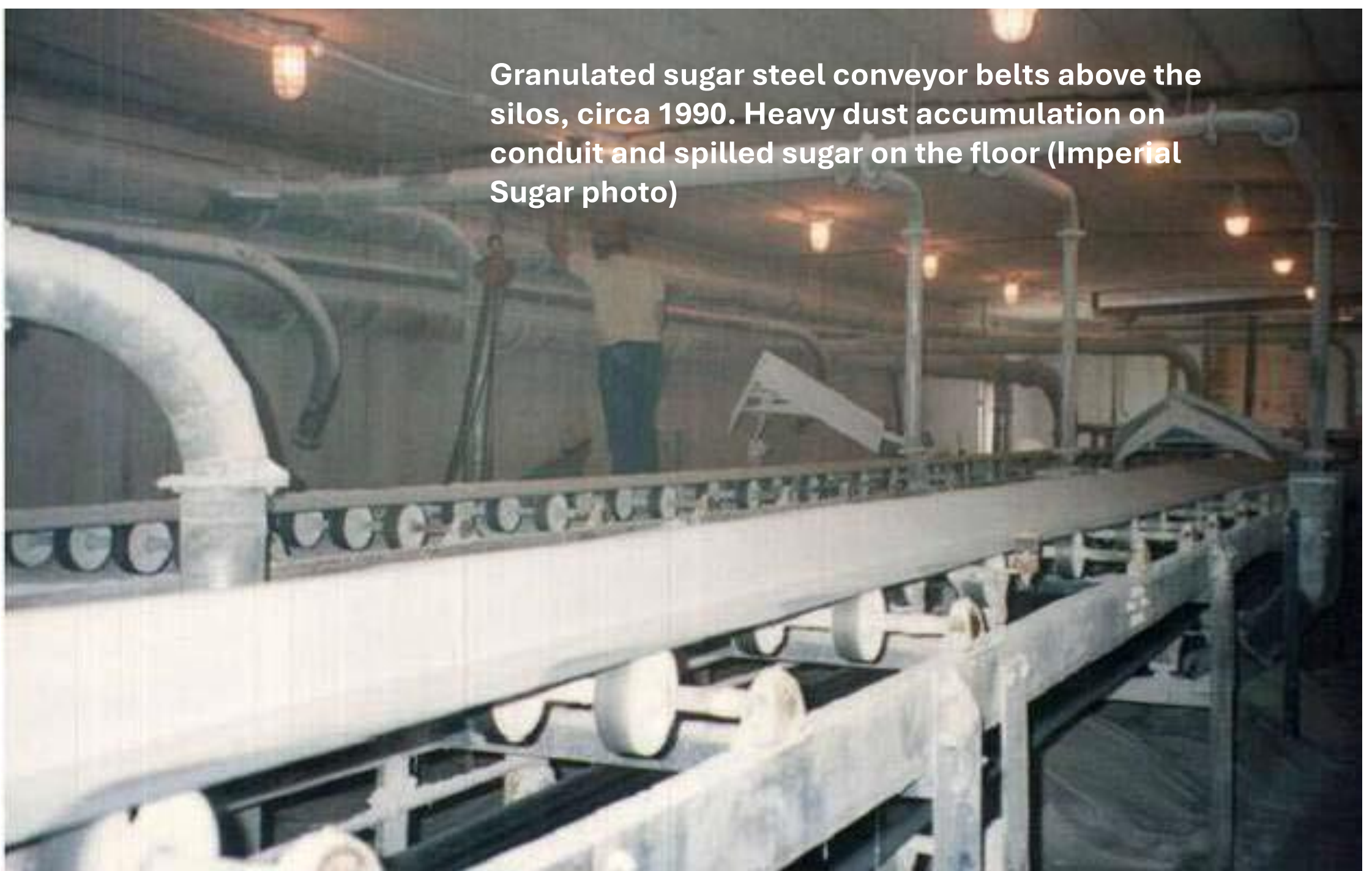
Bosch Packing Building




Palletizer Building

South Packing Building

Granulated sugar steel conveyor belts above the silos, circa 1990. Heavy dust accumulation on conduit and spilled sugar on the floor (Imperial Sugar photo)





A photograph of a modern industrial facility, likely a laboratory or cleanroom. The room is brightly lit by overhead fluorescent lights. In the foreground and middle ground, there are several rows of stainless steel tables or workstations. The tables have a polished, reflective surface and are supported by metal frames. The background shows more of the facility, including additional tables and lighting fixtures, creating a sense of depth. The overall atmosphere is clean and professional.

**Steel Sheilding
added in 2007**



No Dust Collection System



Steel belt covers (arrows) crumpled from an initial dust explosion inside the steel belt enclosure (steel frame structure, right photo)

April 20, 2018

Deepwater Horizon Oil Spill

Gulf of Mexico

17 Injured

11 Fatalities





Feedback Survey



Your feedback is important to me!