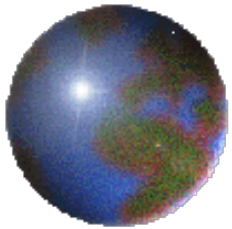
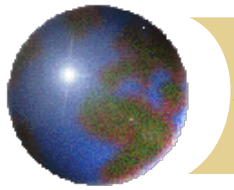


40th Anniversary of Bhopal: Lessons learned and forgotten for LEPCs and community preparedness



TIMOTHY R GABLEHOUSE
May 2025



BHOPAL BASICS

- ✚ THE RELEASE OCCURRED WHEN WATER WAS MIXED WITH MIC
- ✚ THE WATER WAS BEING USED IN ROUTINE LINE CLEANING
 - NOT SABOTAGE
- ✚ FOUR SYSTEMS DESIGNED TO PREVENT OR MITIGATE THE ACCIDENT EITHER FAILED OR WERE TURNED OFF
- ✚ MIC IS AN IRRITANT BUT THE REACTION PRODUCTS ARE DEADLY



Vent gas scrubber

Leaking gas could have been detoxified, but the scrubber was turned off.

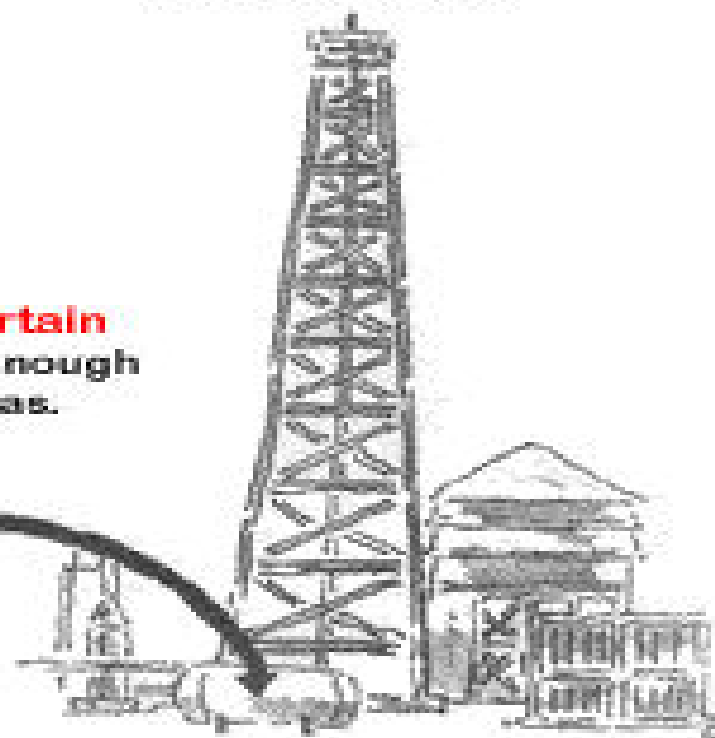
Water curtain

Not high enough to reach gas.



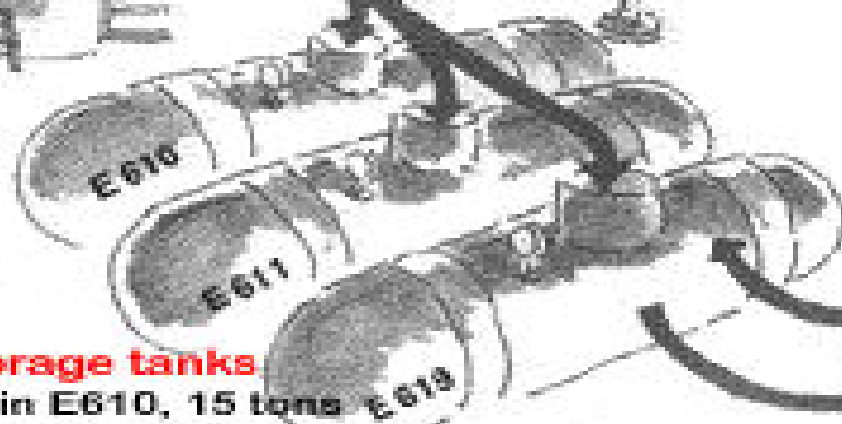
Flare tower

Designed to burn off gas, but a connecting pipe had been removed for maintenance.



MIC storage tanks

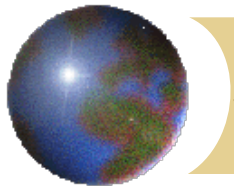
40 tons in E610, 15 tons in E611, E619 was empty. Water leaked into E610 causing runaway heat-producing reaction



Refrigeration system

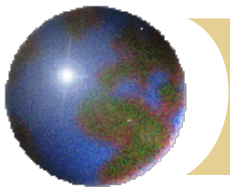
Freon system to cool liquid MIC was shut down in June 1984 to save money and Freon shipped to other plants.



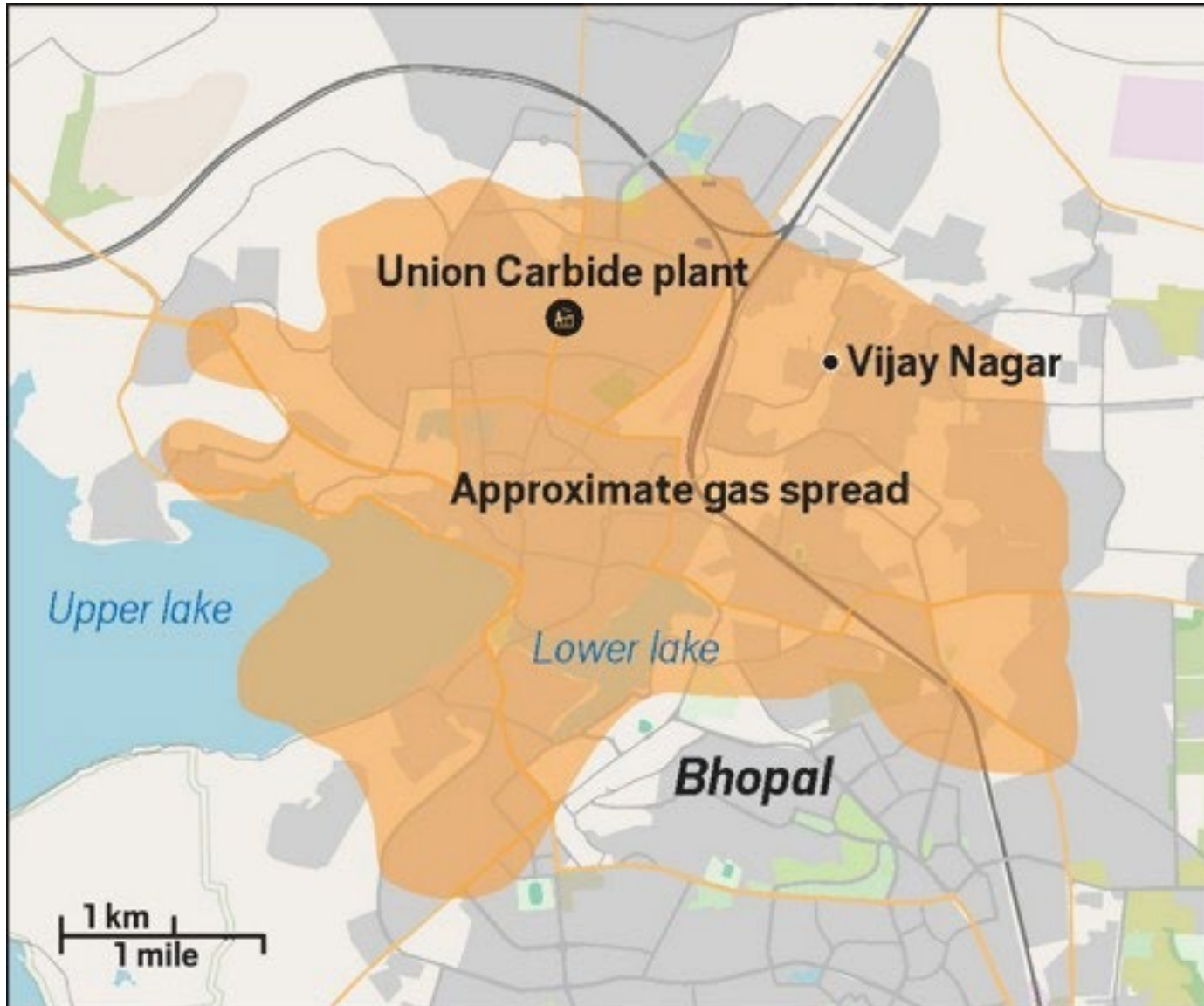


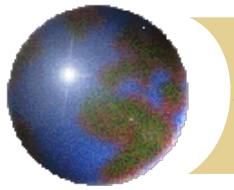
BASIC PART - II

- ✚ RELEASE BEGAN AT ABOUT MIDNIGHT
- ✚ 43 TONS OF MIC BELIEVED RELEASED
- ✚ UC REPORTS LEAK STOPPED ABOUT
3:30 AM



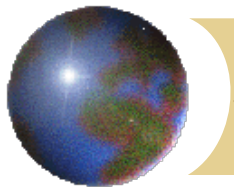
Bhopal





INJURIES

- ✚ ATTACKED ANY MOIST TISSUE
- ✚ MASSIVE RESPIRATORY FAILURE
- ✚ BLINDNESS
- ✚ MANY PEOPLE STILL SUFFER AND
DIE WITH RESPIRATORY PROBLEMS

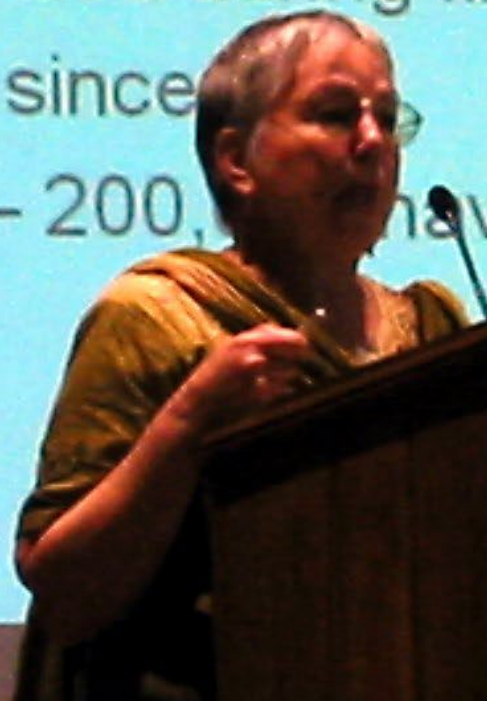


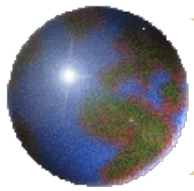
OUTCOMES

- ✚ “OFFICIAL” CASUALTY COUNTS RANGE FROM 3,400 TO 7,500 DEAD
- ✚ NGO & OTHERS ESTIMATE 20,000+
 - ✚ 150,000+ PERMANENTLY DISABLED
- ✚ MOST BODIES BURIED OR CREMATED WITHIN A DAY OR TWO
- ✚ MASS GRAVES ARE STILL FOUND

THE BHOPAL DISASTER

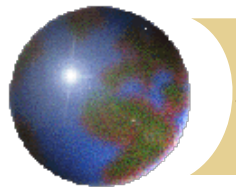
- 520,000 – 730,000 exposed
- > 200,000 were below 15 years of age
- > 3,000 were pregnant women
- 8,000 (?) died during first weeks
- 8,000 (?) since
- 100,000 – 200,000 have permanent injuries





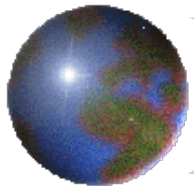
Bhopal





LEGAL STATUS

- ✚ CRIMINAL CHARGES WERE PENDING AGAINST ANDERSON UNTIL HE DIED
- ✚ UC PAID THE INDIAN GOVERNMENT \$465 MILLION TO SETTLE ALL CLAIMS AND CRIMINAL MATTERS
- ✚ INDIAN GOVERNMENT STILL HOLDS MOST OF THAT MONEY
 - SOME VICTIMS HAVE RECEIVED \$300



ENVIRONMENTAL CONDITIONS

- ✚ **SITE IS ABANDONED**
- ✚ **NO CLEANUP HAS OCCURRED**
- ✚ **SOIL CONTAMINATION**
- ✚ **GROUNDWATER CONTAMINATION**
- ✚ **DISPOSAL LAGOONS**











IR / e/o. L.C.C. KALYANPUR, KANPUR
3117634, 3118704

जी बोलना सीखें

CRASH COURSE **MATHEMATICS**
FOR XII-UP SEAT-B.Sc.
CONDUCTED BY **AMIT SHUKLA**
3335767-Mob.No.
VENUE-PRAGYA CLASSES
PANKI ROAD, KALYANPUR, KANPUR Ph.No. 2574226

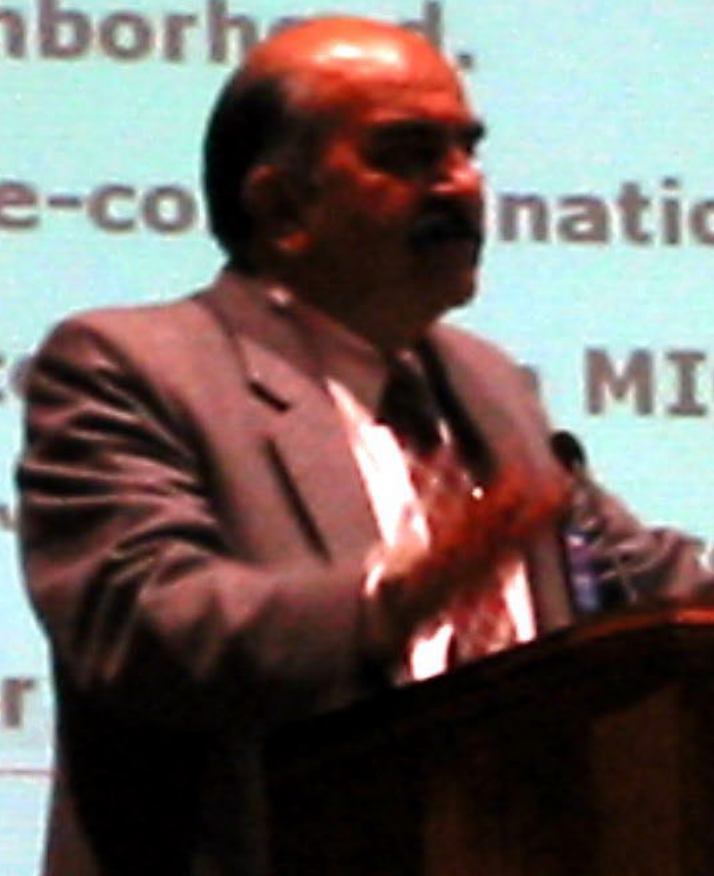






Lack of Emergency Preparedness

- ☐ Absence of proper warning systems.
- ☐ Lack of awareness generation in the neighborhood.
- ☐ No de-contamination station.
- ☐ Limited MIC.
- ☐ The "scenario" probably never



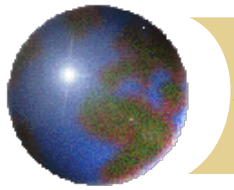
Lack of Vital Information & Communication

- ❑ Vital information about the storage and handling of hazardous and dangerous materials inadequate.

of coordination with local





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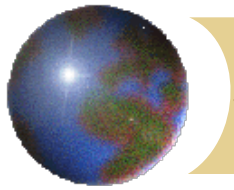
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HAVE THINGS CHANGED?

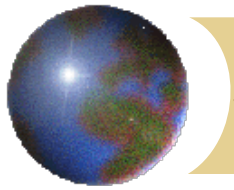
EPCRA WAS CREATED

-  Responsibility is State & Local
-  Emergency Planning
-  Preparedness and Training
-  Community Right-to-Know



HAVE THINGS CHANGED – II ?

- ✚ FOR MOST COMMUNITIES THE “ROUTINE” CHEMICAL ACCIDENT IS STILL THE GREATEST RISK
- ✚ LIMITS ON COMMUNICATION AND INFORMATION STILL HARM PREPAREDNESS AND RESPONSE
- ✚ RURAL COMMUNITIES STILL VERY VULNERABLE



WHAT HAPPENS NEXT?

✚ ON A NATIONAL BASIS

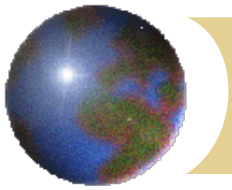
▣ LEPCs FOCUS ON LOCAL CONDITIONS

- RELEVANT TO THE COMMUNITY
- PARTICIPATE IN "ALL-HAZARDS" PLANNING

▣ DO NOT LOSE TRACK OF "ROUTINE" RISKS

▣ EXPAND YOUR HORIZONS/CREATE EXPECTATIONS

✚ MARK WILL DISCUSS OREGON'S PERSPECTIVE



✚ Timothy Gablehouse

✚ Colorado Emergency Planning Commission

✚ 303.572.0050

✚ tgablehouse@gcgllc.com