

# \* Chernobyl - 30 years later



- \* The Chernobyl nuclear accident occurred in 26th of April 1986, in the area of current Ukraine, former Soviet Union.



Alert 1,000 miles away in Sweden after Moscow admits casualties

Huge nuclear leak at Soviet plant

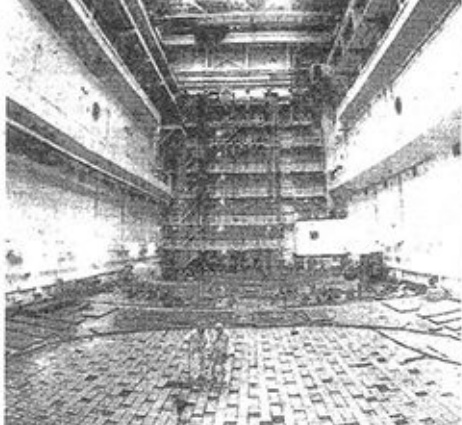
By Thomson Prentice, Science Correspondent, and Christopher Mosley, Stockholm

A massive radioactive leak at a Soviet nuclear power station has caused casualties in what may be the world's worst nuclear accident. The leak was so large that it prompted a full-scale alarm nearly 1,000 miles away in Sweden, including the evacuation of 600 workers from a Swedish power station on the Baltic coast.

Finland reported radiation levels six times higher than normal. Denmark five times higher than normal, and Norway 50% up as a result of the accident. "We have reported radiation just about everywhere where we have looked," said Mr. Ragnar Hope, of the Swedish Radiation Institute.

Some Swedish nuclear experts said they believed the Soviet accident was caused by the overheating of nuclear fuel. A "considerable explosion" would be the result of such overheating and could have led to a "meltdown" of the nuclear core of the reactor, they said.

The Swedish Energy Minister, Mrs Birgitta Dahl, said all workers there. After the evacuation radiation levels were checked at other areas of the country, including the capital. These all confirmed a higher degree of radioactivity than normal, and further tests at Forsmark led the Swedish authorities to conclude that the discharge had come from the Soviet Union.



The Tass statement was a propaganda effort by the Kreninist Party, traditionally hostile to the Soviet Union, to reveal the extent of its nuclear with secrecy. It village. There is nuclear accident in Leningrad during 1975-82, according to a report published in the Oak Ridge laboratory in reported.

"We must demand that Soviet Union improve their security, and inform the rest of the world of such accidents in good time," she said. The first stage of the Chernobyl nuclear plant was put into service in September 1975, followed by two more stages in 1980.

A government committee of inquiry had been set up by the Soviet Union into the accident. Tass said. The Swedish Defense Ministry said an abnormally high level of radioactivity had been recorded on Monday afternoon by several monitoring stations in Finland, Sweden, Denmark and Norway.

The ministry said that at a rate of "a few millirems an hour" it would not be a danger to human beings, although regional specialists said the level was twice as high in Finland as in Sweden and Norway. A millirem is a unit of ionizing radiation that gives the same biological effect as one thousandth of a standard unit of X-rays.

MANHATTAN \* \* \* SPORTS FINAL DAILY NEWS NEW YORK'S PICTURE NEWSPAPER Wednesday, April 30, 1986

FIRE RAGES, CLOUD SPREADS

THOUSANDS FLEE NUCLEAR NIGHTMARE

- Help us, USSR pleads
Death toll uncertain
Europe fears fallout

SEVEN PAGES OF IN-DEPTH COVERAGE BEGIN ON PAGE 2

The News and Observer

Raleigh, N.C. Wednesday, April 30, 1986

Soviets battle nuclear disaster

USSR pleads for help fighting fire in core; settlements evacuated

Fire out of control, U.S. officials say

WASHINGTON—U.S. officials said today that a fire in the core of a Soviet nuclear reactor at Chernobyl was burning out of control, and that the fire was spreading to other parts of the reactor.



Casualties may be felt for weeks, generations



By ROBERT M. SCHNEIDER JR. The type of radioactive exposure that could be caused by a nuclear accident is not clear. The fire did not immediately threaten to melt down the reactor. In a worst-case scenario, the fire could melt down the reactor, and the resulting radioactive fallout could be carried by wind and rain over a wide area.

SOVIET PLANT SPEWS ATOMIC CLOUD

NUCLEAR DISASTER

Western officials fear high death toll



A rare Soviet cry for help

WASHINGTON—The world's first nuclear power plant to be built in the Soviet Union is now in a dire state of emergency, according to a report from the United States.



U.S. Foreign Service and a former U.S. ambassador to the Soviet Union, Lars Erik Nelson, said today that the Soviet Union is in a dire state of emergency.

OUR DIRTY SECRET

Like Soviet, Wash. plant lacks safety shell

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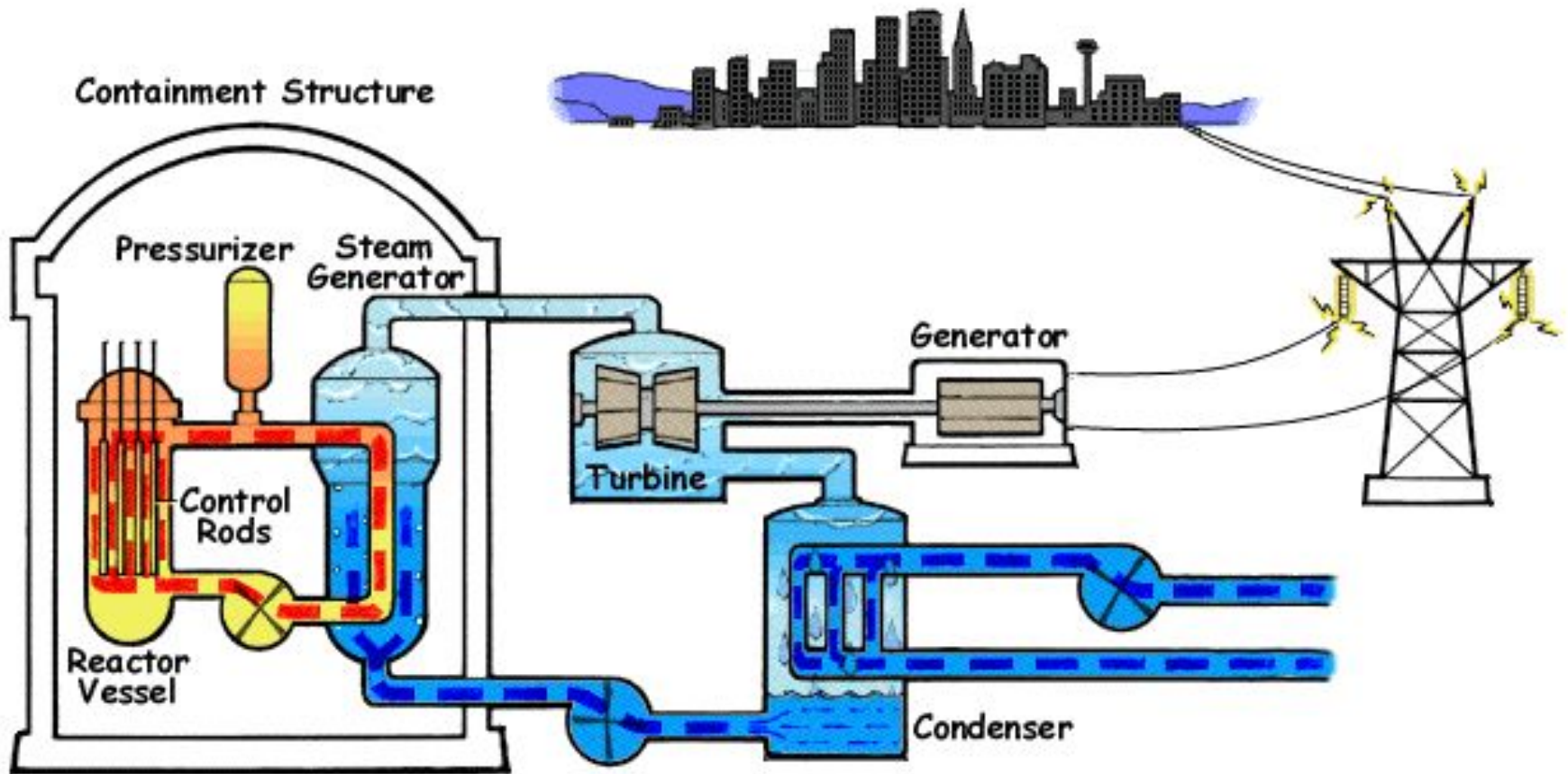
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# \*What happened?

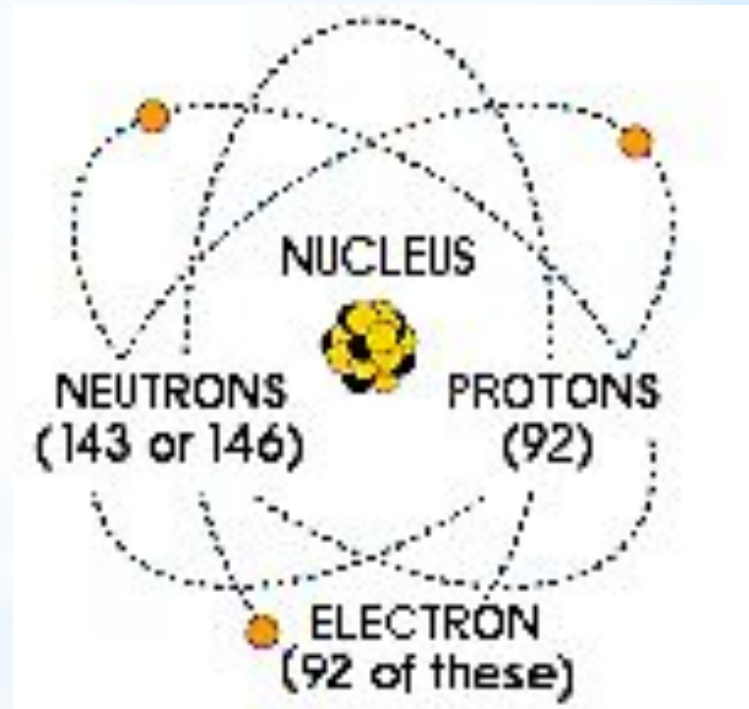
- \*Chernobyl nuclear power plant included four reactors, that produced energy. The reactors were model RBMK-1000. In the night of 26<sup>th</sup> of April a system test made in the reactor number 4 went badly wrong, causing the nuclear accident.



# \* How does nuclear power work?



# \*Uranium



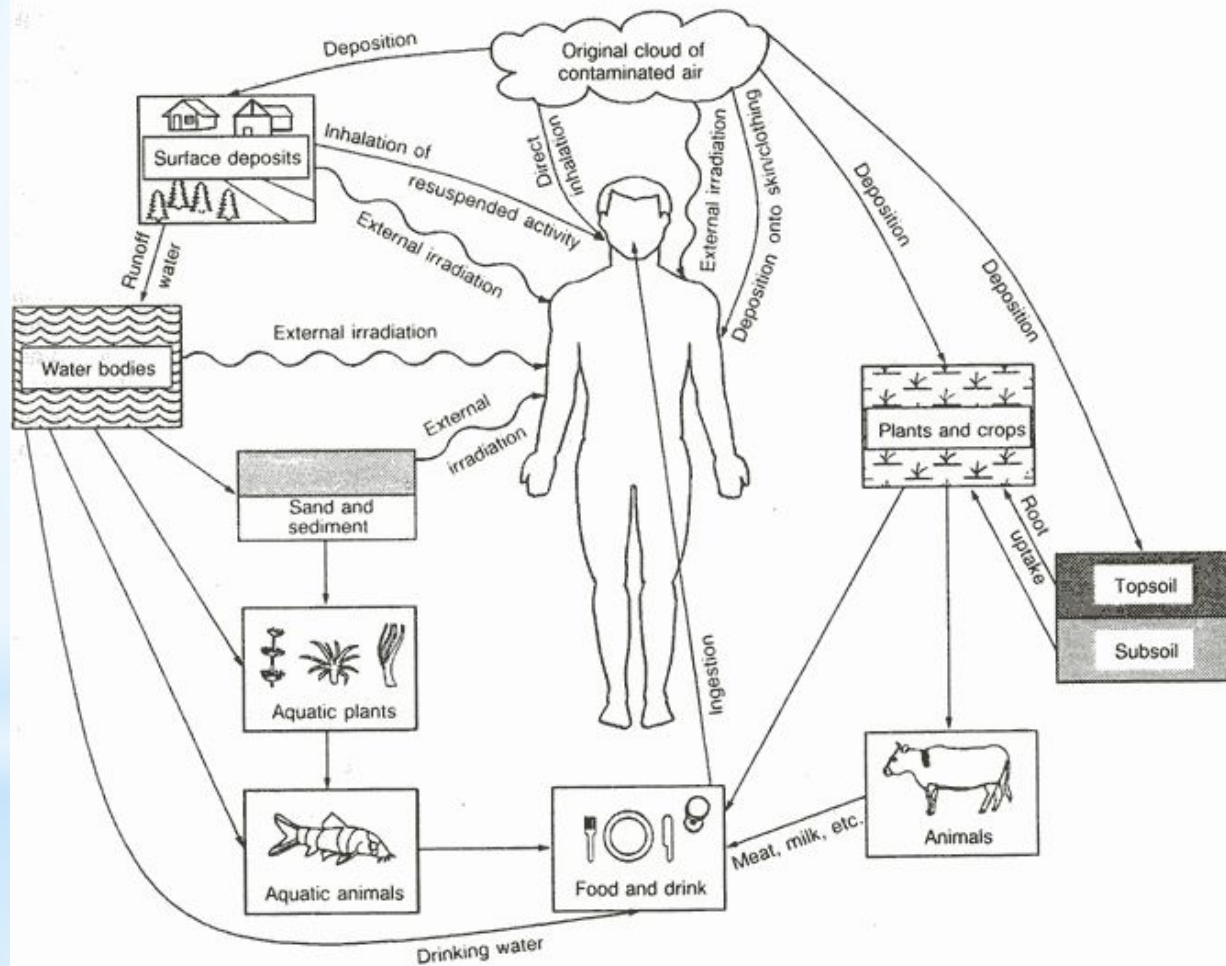
# \* Consequences of the accident

\* The Chernobyl accident had several grave impacts. It released the biggest amount of uncontrolled radioactive gases into the atmosphere in the history.

\* 1) On humans:



# \* Pathway of radiation to human body



**Main environmental pathways of human radiation exposure**

[Source : IAEA technical report ISBN 92-0-129191-4 Vienna 1991]

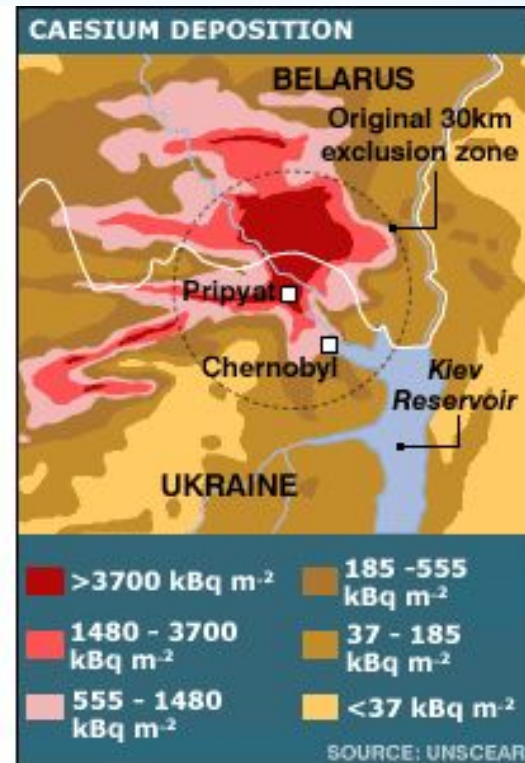
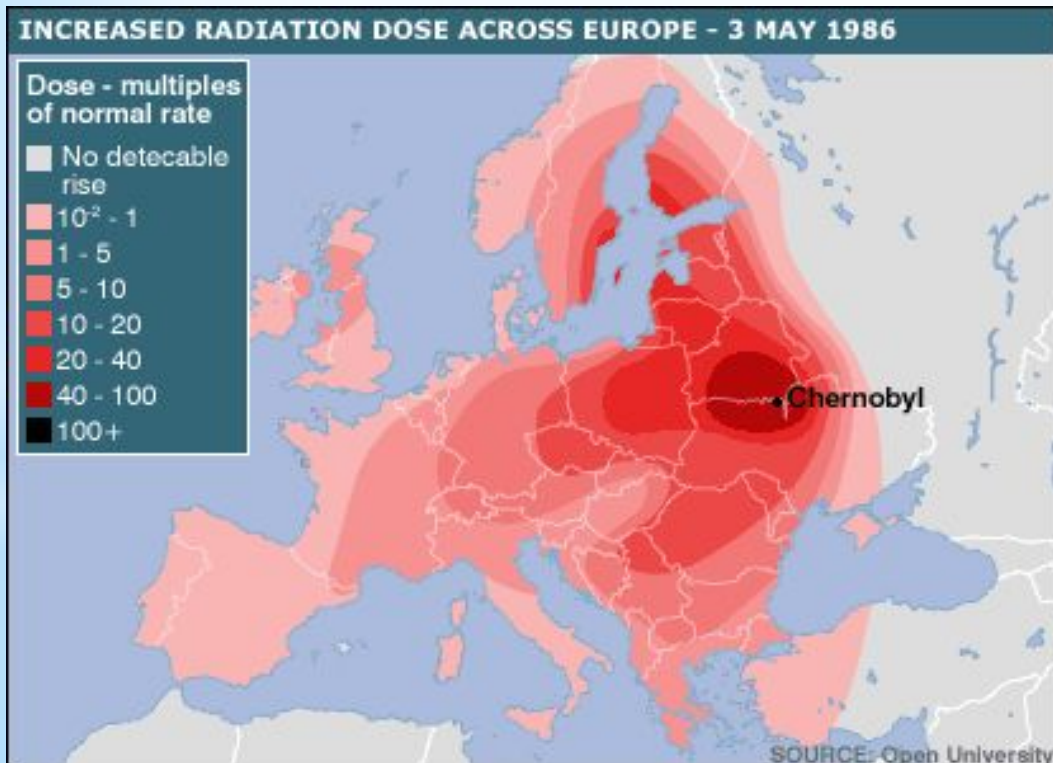


# \* How does radiation affect human body

- \* The radiation that comes from a nuclear accident is different compared to for example x-ray radiation.
- \* It is found to cause cancers, cardiovascular diseases and lower mortality rates.



\* Because of the winds, the radiation was carried to several countries.



# \* Consequences of the accident

## \* 2) On the environment

\* Not only humans, but also the environment was affected due to the accident.



# \* Timeline of the events:

- 26<sup>th</sup> of April - the explosion occurred in the 4<sup>th</sup> reactor of Chernobyl nuclear power plant.
- 27<sup>th</sup> of April- helicopters start to drop sand to the reactor to stop the on going fire.
- 27<sup>th</sup> of April - The close town of Pripyat was evacuated.
- 28<sup>th</sup> of April - Moscow TV announces the accident. International medias also acknowledges the event. Radiation levels are high in different parts of Europe.
- 9<sup>th</sup> of May - First firemen at the site die due to exposure to radiation.
- 10<sup>th</sup> of May - the fire in the reactor is extinguished.
- 3<sup>th</sup> of June - Viktor Petrovich Bryukanov, the director of the Chernobyl plant is prisoned.
- 14<sup>th</sup> of December - A sarcophagus is made to cover the reactor 4.
  
- In 2000 the reactor 3, last functioning reactor of Chernobyl is closed down.
- 2017 - New Sarcophagus for reactor 4 should be ready

# \*Now - 30 years after the accident

<https://vimeo.com/112681885>

- \*We should remember the disaster, so that an event like that does not occur ever again.
- \*Keep in mind the dangers of nuclear.

# \* Quiz:

- \* 1. When did the Chernobyl accident happen?
- \* 2. What was the reason for the accident?
- \* 3. In what current state did it happen?
- \* 4. What is the chemical reaction called that nuclear powers use?
- \* 5. What is the main element (chemical) that is used in nuclear power?
- \* 6. Mention some effects of radiation on humans?
- \* 7. Mention some effects of radiation on the environment?
- \* 8. What is the name of the closest town, that got evacuated?
- \* 9. Why did the radiation spread so widely?
- \* 10. From what other sources does radiation come from?

\* Good luck!