POLITECHNIKA GDAŃSKA
WYDZIAŁ ELEKTROTECHNIKI I AUTOMATYKI

NUCLEAR POWER

LECTURE 6

Gdańsk 2018

1. Charnobyl – city
2. Chernobyl – nuclear power plant
3. RBMK reactor
4. Charnobyl Accident 1986
5. New safe confinment

CHARNOBYL /PRYPEC CITY

fig. Chernobylplace.com

- Inhabited by 50,000 people, mostly associated with the nearby power plant,
- were the pride of the Ukrainian Soviet Socialist Republic
- the population was average age in 1986 - 26 years,
- 15 primary schools were created for approximately 5,000. children, 5 high schools and one professional school.
- You could spend free time in 25 stores and 27 cafes, cafeterias and restaurants.
- The Palace of Culture, Cinema Prometheus and the school of fine arts cared for the level of culture.
- There was also a Ferris wheel,

CHARNOBYL –NUCLEAR POWER PLANT

fig.:www.smartage.pl

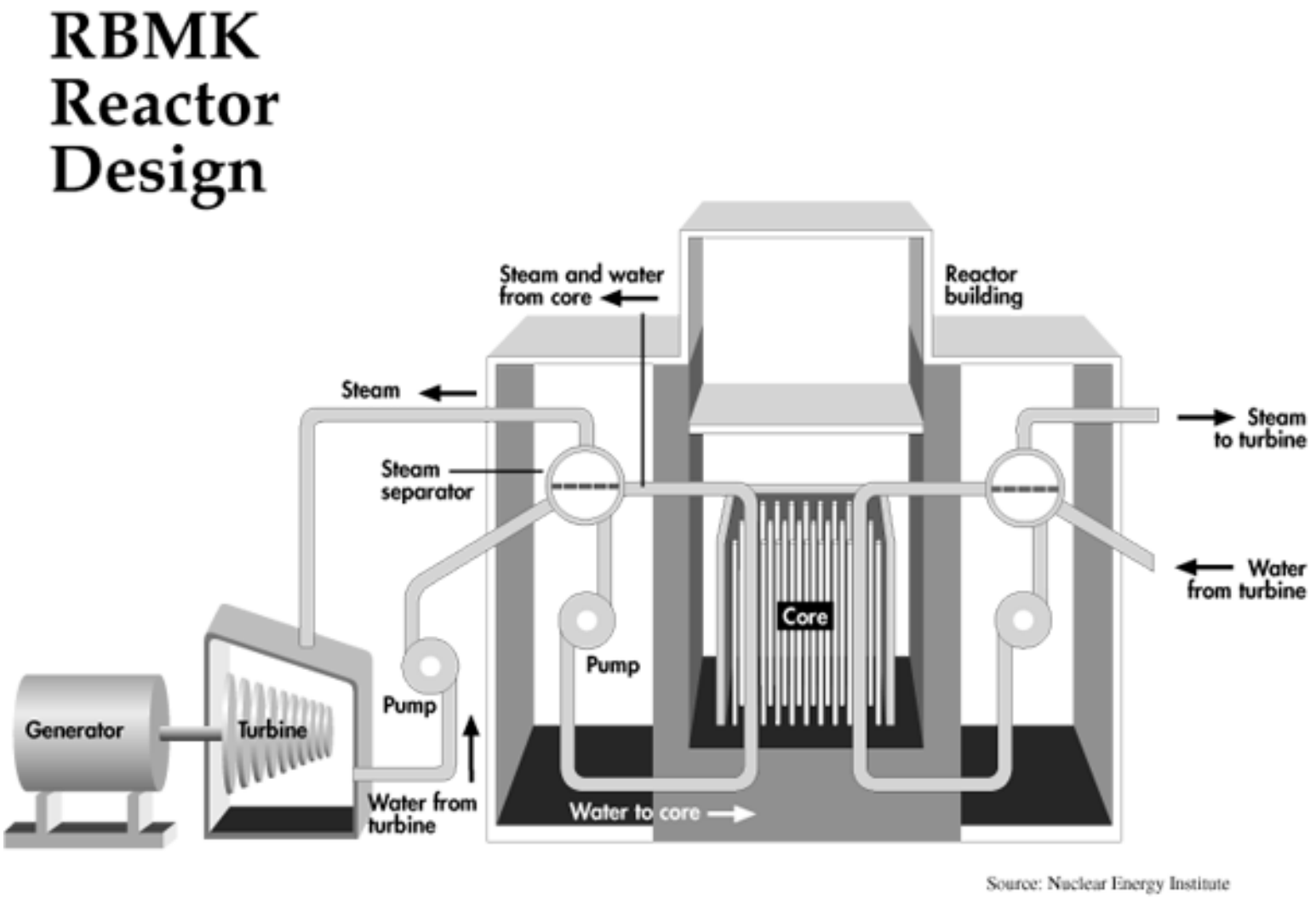
- was establish in 1977.
- it was made in RBMK technology, it is an abbreviation of the High Power Feeder Channel;
- 17 reactors based on this construction were built in the Soviet Union;
- 4 of them were working in Chernobyl;

CHARNOBYL –NUCLEAR POWER PLANT

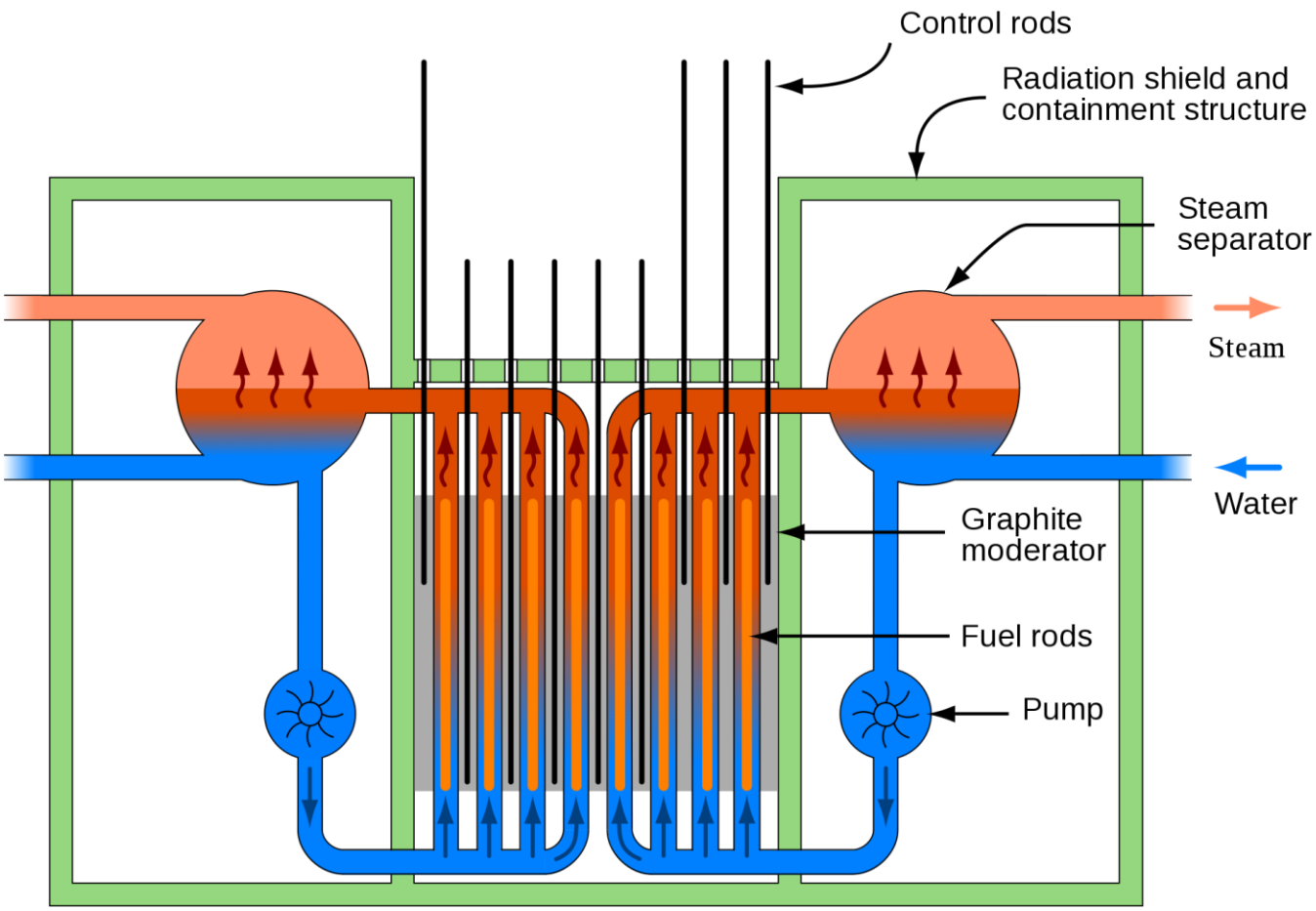
- RBMK is derived from uranium-graphite reactors plutonium for military purposes;
- 4 units – 1000 MW
- Unit 4 1000MWe, 3200 MWt
- Reactor of unit 4: 7 m height, 10 diameter
- Unit 4 and 6 in construction

fig.:www.smartage.pl

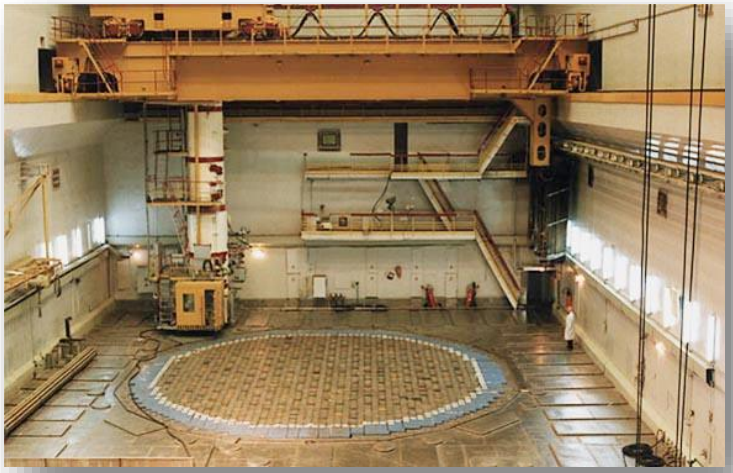
RBMK - REACTOR



RBMK - REACTOR



RBMK - REACTOR



No 1 Reactor at the Leningrad NPP

http://bellona.org

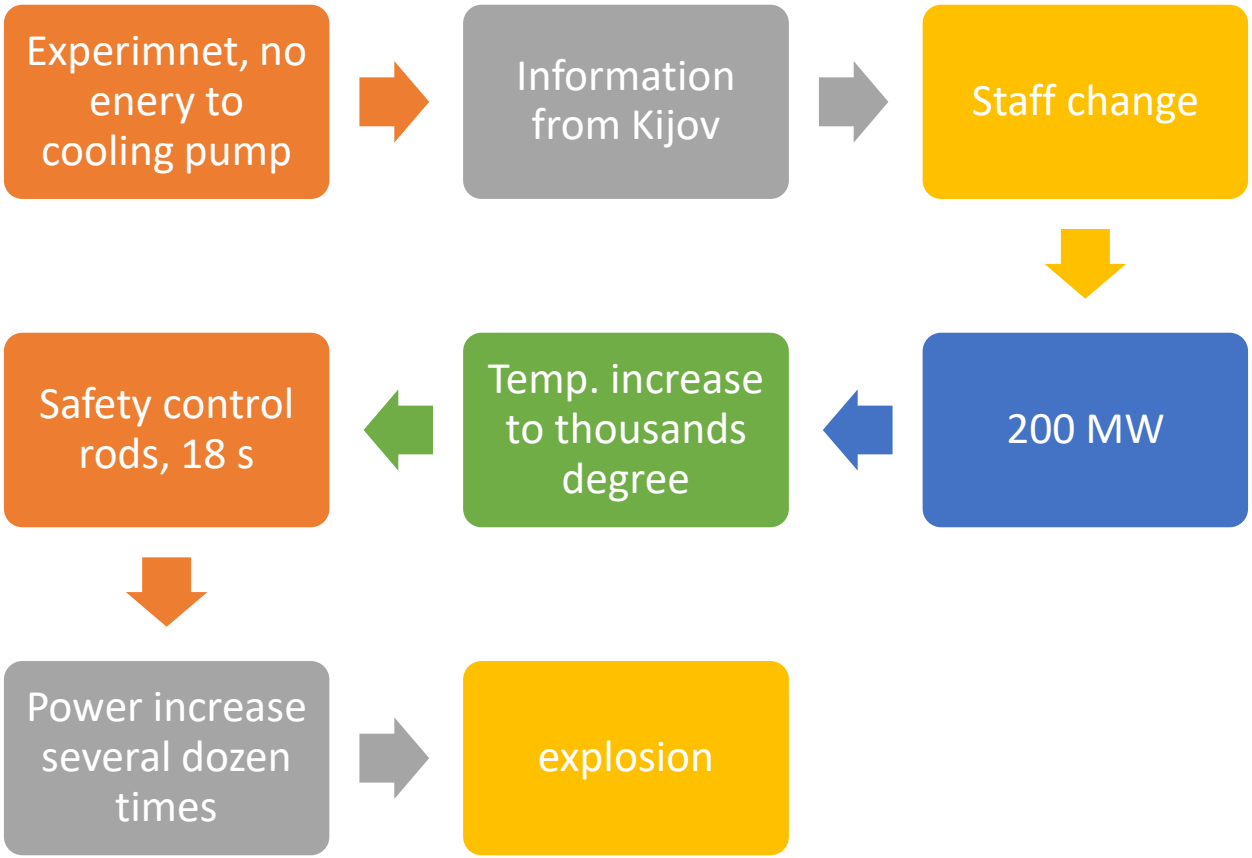
RBMK Reactor has been developed and enlarged, and many reactors of this type have been constructed in the USSR, i

The layout consists of a large graphite core containing some 1700 vertical channe

Each containing enriched uranium dioxide fuel (1.8% U235). Heat is removed from the fuel by pumping water under pressure up through the channels where it is allowed to boil,

Many of the major components, including pumps and steam drums, are located within a concrete shield toprotect operators against the radioactivity of the steam.

CHARNOBYL ACCIDENT



NEW SAFE CONFINMENT

Data:

- 257 m width
- 162 m long
- 108 m heigh
- 36 000 t mass
- 100 years lifetime

RADIATION EFFECTS

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Thank you for your attention