

**ELECTRIC POWER QUALITY AND SUPPLY RELIABILITY AT  
NUCLEAR PLANTS. WORLD EXPERIENCE.**

A long time passed since the mysterious atom which let out X-rays has been studied well enough, many openings have been made, there are many achievements and, alas, there is a set of victims of the mysterious atom. Unfortunately, it is not always used in peaceful purposes, and, alas, the result sometimes does not meet expectations. The atomic engineering has gone far, the set of standards is developed, and there are great plans about how to use this changeable atom.

Several years later, Roentgen being asked what he thought at the moment of this greatest opening, answered simply: «I did not think, I experimented». This phrase became the credo of his many followers.

As the circle of the scientists, who worked with X-rays, was small, and the effect made on alive cells by X-rays, was delayed, then nobody thought of the danger of mysterious atom and standards of protection. At that time ideas about all-round advantage of atom were repeatedly sounded, for example, it was offered to wash fruit with the water having the small maintenance of radioactive substances, to take radioactive baths and even considered, that such baths will give 100 % recover at oncological diseases of skin. Bottles of a radioactive cream «Curie» were widely used as they thought it should prevent baldness. The cream «ACTIVA» promised "miracles". The European catalogue of medicines for 1929 included 80 patented medicines with radioactive components, and all of them were miracle: salts for baths, liquid ointments, a tooth-paste and a bar of chocolate.

The first who spoke about the dangers of the mysterious changeable atom was Becquerel, when he found not healing wounds on the hands. The similar picture was observed by many assistants of the scientists who studied radioactivity. Pierre Curie was laid up with an unknown disease characterized by weakness and lack of appetite. Marie Curie's assistant, Blanche Vithman, lost her hair, her hands had numerous wound. Marie Curie died in Paris of blood cancer

five years after the death of Blanche, and her books in which she had registered the results of the research were so radioactive, that no one dared to take out from the lead safe. There they are still stored, in the institute of nuclear physics in Paris.

When the danger of changeable atom became obvious, the group of scientists named radiobiologists, were to solve the problem of development of standards: the safe dose received at contact to radioactive substance, time of contact to it and so forth. Difficulty of development of standards consist in the fact that, first, each radioactive substance had the unique properties, and acted on alive cells differently. Secondly, influence of the same substances in identical doses individually. Thirdly, scientists had no right to risk health of people therefore data it was necessary to collect only in not numerous already taken place cases.

At that time the industrial use of atom, for example, for manufacturing bombs began. And radiobiologists saw one more problem - it is necessary to estimate consequences of emission of radioactive substances in an atmosphere to define admissible distance from nuclear objects up to settlements, to estimate probable damage and so forth.

To sum it up, it is possible to say that in the given book the idea is that the nuclear reactor PBMK-1000000000 was initially designed to uranium enrichment. When the Government challenged the scientists to create a powerful atomic reactor within a short time, they decided to modify the reactor by adding a turbine. As compared to a well-designed less powerful VVR reactor, the new reactor had non-linear qualities on the temperature graph. When the testing was being hold, the personnel oriented themselves on the VVR qualities without taking into account the peculiarities of the new reactor. According to - the former deputy director of the Chernobyl atomic power station Alexander Kovalenko, the explosion on the Chernobyl reactor 20 years ago occurred not because of the design failure of the reactor, but because of a mistake of the personnel.