

FLOATING NUCLEAR POWER PLANT

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Energy is one of the main resources important to mankind. All the spheres of human activity, up to the exploration of the Moon and Mars, require energy consumption. Nuclear power plants (NPP) are the most promising energy sources. Floating nuclear power plants (FNPP) are more economical than conventional thermal power stations and-what is more important- being properly operated, they are “clean” energy sources.

The following basic provisions of FNPP have been considered in the paper:

The history and technical characteristics of FNPP. The idea of building floating nuclear power plants for the use of atomic energy at the sea was firstly proposed by Richard Eckert in 1969. In 1993, a group of the Russian Ministry of Atomic Energy (Minatom) experts proposed the use of low-power NPPs in the form of nuclear reactors installed on board ships.

The main provisions of the FNPP project. The FNPP includes two nuclear reactors, two turbo-generators, electro-technical equipment, backup diesel and boiler installations, as well as residential and backup premises containing equipment and systems needed for service staff.[1]

Shortcomings and risks of the FNPP design. The drawback of the KLT-40C reactor is its fuel - high enriched uranium (> 20%). The use of this fuel in floating nuclear power plants based on the KLT-40C reactors can lead to the problem of ensuring non-proliferation of nuclear materials for military or terrorist purposes, especially in case of operation of the floating nuclear power plants in the countries, which do not have nuclear weapons.

The Floating NPP is an object of the nuclear terrorism. The operation of the FNPPs puts the issues of increasing danger of the nuclear weapon distribution and nuclear terrorism to the world community. The KLT-40C reactor works on the high enriched uranium (36% and 47% on U235), which can be used for creating the nuclear explosive device of a nuclear bomb without special further processing. [2]

Influence of the FNPP on the environment and population. During normal operation of the NPP the designers set dose limits "within a natural background" for the population. Therefore, the radiation effect of the FNPP on the population and the environment under condition of normal operating and design accidents should not make a noticeable contribution to a natural background radiation [1].

Conclusion.

In spite of the fact that the construction of the NPP on ships is one of the perspective directions of the Russian nuclear industry, at the same time, this direction has a large number of negative aspects listed above. That is why it is premature to talk about the future of this project.

REFERENCES

1. White book of nuclear power (1998). Under the editorship of the prof. E. O. Adamov, pp.121-155.
2. Bulletin "Nuclear Safety", (1998), No. 15-16, pp. 57-90