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THE NUCLEAR ENERGY AGENCY REVIEWS SAFETY RESEARCH NEEDS FOR RUSSIAN-DESIGNED REACTORS

Senior nuclear safety research experts from Russia and from the Member countries of the OECD Nuclear Energy Agency (NEA) have just completed a thorough review of the nuclear safety research effort needed to improve the safety of nuclear power reactors of Russian design (*). The aim was to develop practical conclusions and recommendations regarding high priority safety research that will assist decision-makers and managers of research funding in planning, initiating and carrying out programmes that can improve the safety of these types of reactors.

Following the break-up of the Soviet Union in 1991, major national and international organisations initiated programmes to assess and improve the safety of nuclear power plants in countries operating Russian-designed reactors. Included were bilateral and multilateral assistance programmes, co-ordinated by the G-24, among them being: the programmes of the European Commission (PHARE, TACIS), the efforts of the International Atomic Energy Agency (IAEA), the nuclear safety account of the European Bank for Reconstruction and Development, and, of course, the co-operation and assistance programme of the NEA.

This latter programme is intended to contribute to an improved nuclear safety culture in the central and eastern European countries (CEEC) and the Newly Independent States (NIS) by concentrating on long-term objectives, as a complement to the near-term technical upgrades to the plants with the highest risk, and improvements of operational safety. In 1995, an OECD Support Group on the Safety Research Needs for Russian-Designed Reactors was set up, consisting of senior Russian and Western experts, with the specific aim of identifying the safety research needs for Russian-designed reactors.

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The two main types of Russian-designed reactors are the VVER type and the RBMK type. Because of similarities between Western light-water reactors (LWRs) and VVERs, safety research in OECD countries applies to VVERs to a considerable extent, but some important elements apply as well to RBMKs. Nevertheless, the emphasis of the study is on the VVER-type reactors in part because of the larger base of knowledge within the NEA Member countries related to light-water reactors. For the RBMKs, the study does not make the judgement that such reactors can be brought to acceptable levels of safety but focuses on near-term efforts that can contribute to reducing the risk to the public. The need for the safety research must be evaluated in the context of the lifetime of the reactors.

Among the general conclusions drawn by the authors of the report, are the following:

- The most important near-term need for VVER and RBMK safety research is to establish a sound technical basis for the emergency operating procedures used by the plant staff to prevent or halt the progression of accidents (i.e. Accident Management) and for plant safety improvements.
- Co-operation among Western and Eastern experts should help to avoid East-West know-how gaps in the future, as safety technology continues to improve.
- Safety research in Eastern countries will make an important contribution to public safety as it has in OECD countries.
- RBMK safety research, including verification of codes, starts from a smaller base of experience than VVER, and is at an earlier stage of development.

In their report, the authors recommend that a Safety Research Strategic Plan be developed; that regulators, operators, plant designers and researchers be involved in developing and implementing this plan; and that international co-operation in safety research be encouraged for purposes of improving quality, preventing technical isolation, and sharing cost.

(*) ***SAFETY RESEARCH NEEDS FOR RUSSIAN-DESIGNED REACTORS***
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