

Information message on the problems of ensuring the security of the "Shelter" facility

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Confidential

On Some Issues in the Elimination of the Consequences of the Chernobyl Disaster

Despite the measures taken, the problem of ensuring the safety of the Shelter remains pressing. Along with the conclusions of individual experts regarding the safety of the destroyed power unit, a number of scientists from the Kurchatov Institute of Atomic Energy's integrated expedition believe that the collapse of the reactor continues to transform fuel-containing materials from sintered crystalline-glassy forms into a dust-like state. This, under certain conditions, does not preclude the occurrence of a self-sustaining nuclear chain reaction with the potential for dangerous developments.

These assumptions are confirmed by repeated localised neutron flux surges recorded by sensors of the Shelter information and diagnostic complex throughout 1990.

Experts are also concerned about the condition of the soil and foundations in the Chernobyl Nuclear Power Plant area. Due to the cessation of reclamation and irrigation work, as well as the construction of a slurry wall, groundwater levels have risen, necessitating a reassessment of the stability of the nuclear power plant structures.

The situation in the regions of the republic affected by the Chernobyl nuclear power plant accident remains challenging. The efforts of specialists to eliminate its consequences are, in some cases, hampered by unresolved organisational issues. For example, radiation monitoring work has been entrusted to various institutions and organisations, which employ different methods and use insufficient equipment. The lack of a single coordinating centre for collecting and processing information hinders the timely assessment of changes in the situation and the determination of safe living conditions for the population.

For example, in the Vyshgorod district of the Kiev region, radiation monitoring is carried out by the district sanitary and epidemiological station and veterinary laboratory, as well as by the dose monitoring stations of the district agricultural chemical plant and the Dymersky dairy plant (a total of seven organisations). However, their measurement results often contradict each other.

A similar practice exists in the Polessky and Ivankovsky districts.

To date, in these and other affected districts of the region, there are no large-scale contamination maps that could be used to identify safe areas for grazing livestock and growing agricultural produce. The distribution of strontium-90 and plutonium-239 radionuclides (which are more dangerous to humans than cesium-134 and 137) is also unclear.

Closely related to this problem are the issues of radioactive waste containment and decontamination. For example, as early as the summer of 1990, in the Ivankovsky District, sites of beta radiation contamination hundreds of times exceeding permissible levels were

discovered, requiring special large-scale decontamination measures that have not yet been implemented. In the Polessky District, no organisation has been designated to oversee the radioactive waste disposal sites (there are only nine), making their operation unsafe.

In March of this year, the Southwestern District Inspectorate of the State Industrial Safety and Health Supervision Service (GPAN) conducted an inspection of radioactive waste management within the 30-kilometer zone of the Chernobyl Nuclear Power Plant. A random inspection identified a number of serious deficiencies related to the quality of the design and construction of radioactive waste disposal facilities (RWDFs), as well as the migration of radionuclides into groundwater from temporary radioactive waste containment sites (TRWCS). Furthermore, it was found that the concentration of strontium-90 in the water from test pits near the TRWCS exceeded permissible limits by more than 500 times.

Plutonium-239 was detected in soluble forms. This necessitates the certification of all trenches and waste heaps to determine their priority for reburial at the waste disposal facility.

According to specialists from the State Nuclear Academy of Sciences, the main reasons for the low efficiency of ongoing radioactive waste containment and site decontamination efforts are the lack of a comprehensive approach to the problem, as well as an analysis of the effectiveness and adequacy of the measures being implemented and the research being conducted.

These problems must be addressed by the relevant agencies involved, and, above all, by the State Committee of the Ukrainian SSR for the Protection of the Population from the Consequences of the Chernobyl Nuclear Power Plant Accident.

The problem of organised resettlement from contaminated areas of the republic remains pressing. For example, to resettle residents of 12 villages in the Narodichi district of the Zhytomyr region between 1989 and 1991, it was necessary to build 1,460 manor-type residential buildings. As of April 1 of this year, 1,197 buildings had been commissioned, of which only 789 were occupied. The commissioning of housing for the resettled residents is being delayed due to a shortage of labour and poor-quality construction work.

Due to the lack of adequate housing for re-settlers from the urban-type settlement of Polesskoe (4,000 families), only 1,491 have moved out of the planned 2,050 in 1990. Overall, of the 1,210 apartments reserved for re-settlers throughout the republic, only 602 are actually ready for occupancy. It is significant that the Ivano-Frankovsk, Zakarpatiye, Odessa, Kherson, and Cherkassy regions have failed to fulfill their plans for apartment reservations. Some regions (Zaporozhie and Dnepropetrovsk) are offering areas with challenging environmental conditions for re-settlers.

Residents living in contaminated areas continue to be concerned about deteriorating health and the environmental safety of food products. A 1990 medical examination of 7,230 children under 14 in the Ivankovsky District revealed various pathologies in 4,814 of them (67%). An increase in blood and nervous system diseases, chronic bronchitis, and cholecystitis was noted, and the birth rate declined. In the Polessky District, cases of strokes and haemorrhages

have increased. The incidence of thyroid disease in children reaches 40%. Moreover, despite the increasing incidence, hospitals are understaffed.

The dosimetric equipment used for rapid analysis of radionuclide content in food products is ineffective. Random checks are periodic and do not provide a complete picture of product purity. Furthermore, the new "Temporary Permissible Levels of Contamination of Food Products and Drinking Water with Radionuclides" (TPL-91) regulate maximum concentrations of strontium-90. The existing TPL-88 only accounted for cesium-134 and 137. Therefore, a nearly complete refurbishment of the dosimetric equipment fleet, including that used at food processing plants in the republic, will be required.

While generally positively assessing the state and prospects of international scientific and technical cooperation in addressing the medical and biological consequences of the Chernobyl nuclear power plant accident, a number of leading scientists in the republic simultaneously express concern about the current practice of uncontrolled transfer of scientific information to foreign specialists, which is often unique and unparalleled. This, in their opinion, could lead to leading Western scientific centres, using our country's accumulated experience in addressing such radiation disasters, implementing their own scientific programs, the results of which will remain inaccessible to Soviet scientists.

In this regard, they propose conducting a comprehensive analysis of the research results obtained in this area, specifying the information to be protected and prioritising developments, taking into account their importance for mitigating the consequences of the accident. Further sharing of such information will be carried out on a mutually beneficial commercial basis. This will avoid duplication in the development of scientific programs for research into the consequences of the accident, determine their potential for practical application, and avoid dead ends.

To address these issues, it seems appropriate to create a special expert council with the participation of specialists from interested ministries and agencies.

Committee Chairman N. Golushko