

On the situation at the Chernobyl NPP and in the 30-kilometer zone

April 1, 1987

Secret

Regarding the situation at the Chernobyl Nuclear Power Plant and in the 30-kilometer zone

The KGB Directorate for Kiev and the Kiev region is taking the necessary measures to ensure reliable monitoring of the situation at the Chernobyl Nuclear Power Plant and in the 30-kilometer zone, and the timely identification of any preconditions for an emergency, as well as any negative manifestations among plant workers, and employees of enterprises and organizations involved in the clean-up efforts.

During March, the radiation situation at the facility and in the zone remained unchanged and is characterised by the following data.

Gamma radiation levels are as follows:

in the rooms of power units 1 and 2 and the administrative building — 0.8–240 $\mu\text{Sv/hr}$;

in power unit 3 — 10–6,000 $\mu\text{Sv/hr}$;

on the plant grounds — 15–1,400 $\mu\text{Sv/hr}$;

in the city of Pripyat — 2–30 $\mu\text{Sv/hr}$;

in the city of Chernobyl — 0.5–10 $\mu\text{Sv/hr}$.

Despite additional clean-up measures, the gamma radiation level on the roof of Unit 3 remains at up to 20,000 $\mu\text{Sv/hr}$.

The condition of the damaged Unit 4 is being monitored using an information and diagnostic system. The physical characteristics of the unit are relatively stable, and a decrease in reactor temperature is observed.

Units of the USSR Ministry of Defence, Ministry of Energy, and Ministry of Atomic Energy of the USSR continue work to decontaminate Unit 3 and prepare it for start-up, as well as the adjacent territory, and to preserve the so-called "red forest."

As of March 30, 827 of the 1,108 rooms in Unit 3 have been decontaminated. A decision has been made, and technical preparations are underway, to dismantle the roof of the turbine and reactor halls of this unit. The equipment is the most difficult to decontaminate, and therefore a significant number (over 500) of electric motors must be dismantled.

In accordance with expert recommendations, the embankment of the so-called "red forest" has been completed, after which the trees will be felled and subsequently covered with a layer of soil up to 1 meter thick, which will reduce gamma radiation levels by 10-15 times.

At the direction of the government commission, staff from the USSR State Hydrometeorological Service, the USSR Ministry of Water Resources, the USSR Academy of Sciences, and the Ukrainian Academy of Sciences conducted a study of the flood's impact on possible additional radionuclide contamination of the Dnieper, Pripyat, and other river basins. According to the experts, due to the moisture deficit that occurred in the autumn, a significant portion of the snowmelt water, along with radionuclides, will be lost to the ground. Protective

structures (filter dams) on small rivers should ensure the retention of up to 50% of the isotopes contained in the water.

The greatest concern is the condition of the cooling pond dam, which is being reinforced with gravel and other materials. A system of drainage wells is installed around the perimeter of the cooling pond, with groundwater subsequently pumped into the pond. Provided the measures taken are implemented reliably, a significant increase in water activity in the Kiev Reservoir basin is not expected.

In populated areas prepared for re-evacuation, the gamma radiation level ranges from 0.3 to 0.8 $\mu\text{Sv/hr}$, and the contamination level (Bq/km^2) for plutonium-239 ranges from 370,000,000 to 3,330,000,000 [0.37-3.33 GBq/km^2] for cesium-137 from 74,000,000,000 to 273,800,000,000 [74-273.8 GBq/km^2], and for strontium-90 from 11,100,000,000 to 1,036,000,000,000 [11.1-1.036.0 GBq/km^2].

When deciding on re-evacuation, the following indicators for the feasibility of return were determined: gamma radiation power one year after the accident less than 7 $\mu\text{Sv/hr}$, contamination density for strontium no more than 111,000,000,000 Bq/km^2 [11 GBq/km^2], caesium no more than 555,000,000,000 Bq/km^2 [555 GBq/km^2] and plutonium no more than 3,700,000,000 Bq/km^2 [3.7 GBq/km^2].

Over the past period, the primary and auxiliary equipment of the operating power units operated, in general, reliably. However, there were three instances of power reduction due to emergency requests resulting from the discovery of defects and malfunctions in the equipment.

On March 4 of this year, the power of Unit 1 was reduced by 50% due to a short circuit in the auxiliary transformer; the backup transformer was currently undergoing repairs.

On March 8 and March 29 of this year, the capacity of Units 2 and 1 was reduced by 50% due to the formation of leaks in the superheater piping. Experts believe these defects are the result of design flaws and operational issues with the superheater.

Other equipment defects were also noted, which were addressed during scheduled maintenance. The overhaul of Unit 2, scheduled for March 24 of this year, was postponed to April 3 of this year due to a power shortage.

During the power unit shutdown, a program is planned to study the equipment's operability (testing the operation of the main safety valves and turbine unit valves), as well as to record the physical characteristics of the RBMK-1000 reactor. Measurements of the steam coefficient of reactivity will be conducted with a change in the water flow rate in the channels by 100 m^3 per hour, both up and down from the nominal value.

The power factor and stability factor of the reactor will be calculated based on a recalculation of the monitored parameters. The program for the study has been approved in accordance with established procedures; the study duration is 36 hours.

To ensure the normal operation of the station, a project has been developed, and repairs to the station's access roads have begun.

During the course of the security service's operations, no information was obtained regarding hostile actions aimed at disabling the equipment.

The moral and political situation among the Chernobyl Nuclear Power Plant staff, the Combine Production Association, organizations involved in the accident clean-up, and military construction teams is generally normal.

According to our information, the plant's management has planned a series of organizational and political events within the staff in connection with the approaching anniversary of the accident.

Following the transition to a new pay system on March 15, following a decision by the USSR Council of Ministers, 32 people (mostly women) resigned from the enterprise. A massive influx of people from various regions of the country seeking employment is noted.

The most important issue among staff is the issue of permanent registration in Kiev, provided they receive the maximum permissible dose and resign from their jobs, or if they do not wish to relocate permanently to Slavutich.

According to MSU-126 of the USSR Ministry of Health, the health of plant workers is assessed as satisfactory. The most common illnesses are those related to nervous system disorders, which raises some concern given the nature of the work, which requires significant nervous strain. Currently, more than 200 NPP workers have been identified whose radiation dose during 1987, taking into account previously received doses, should not have exceeded 12–28 mSv.

By a decision of the USSR Ministry of Health dated January 28 of this year, new external radiation exposure standards were established.

For workers operating power units 1, 2, and 3 during the construction of Phase 3, the standard is 50 mSv, and for those involved in the decontamination of power unit 3, the standard is up to 100 mSv.

In exceptional cases, with the permission of the USSR Ministry of Health, external radiation exposure of up to 250 mSv is permitted.

We continue to monitor the situation.

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