

Message on the Inadvisability of putting into operation the 3rd power unit of the Chernobyl NPP

September 10, 1987

Secret

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

According to data available to the KGB Directorate of the Ukrainian SSR for the city of Kiev and Kiev Region, the situation at the Chernobyl Nuclear Power Plant and in the zone was generally stable from June to August of this year.

The plant's administration and staff, the Combine Production Association, and employees of organizations involved in the accident response took organisational and technical measures to ensure the operation of Units 1 and 2, prepare for the launch of Unit 3, monitor the condition of the Shelter, decontaminate the adjacent territory, and construct the town of Slavutich. Simultaneously, measures were taken to improve the organisation and coordination of work carried out in the area in the interests of the USSR Academy of Sciences, the USSR Ministry of Defence, and other agencies.

At the same time, incoming data indicate the presence of a number of unresolved problems and difficulties at the facility and its surroundings, including the Slavutych structure, which are negatively impacting the quality and effectiveness of the measures being taken.

The radiation situation in the area has not changed significantly. Minor fluctuations in the activity of the air, soil, and water are observed, primarily due to natural factors.

In the immediate vicinity of the nuclear power plant, airborne activity did not exceed the permissible concentration of radionuclides (PCAR) and was 20.36 Bq/m³ at the most intense point at the outdoor switchgear (OSG) site, 0.592 Bq/m³ on the Pripyat-ABK Road, and below 0.004 Bq/m³ in remote areas.

The main contributors to the total gamma activity of the soil are caesium, cerium, and ruthenium radionuclides. Caesium activity in the Zeleny Mys settlement area is 111,000,000,000 Bq/km², which is five times lower than the temporary maximum permissible limits (555,000,000,000 Bq/km²).

Research conducted under the Water program showed that in August of this year, the average total radioactivity in the cooling pond decreased by half compared to July. Radionuclide concentrations in the Pripyat River water do not exceed 0.37 Bq/L, indicating insignificant runoff of radioactive substances from the land surface into the river basin.

The highest radionuclide activity of the sediments is recorded in stagnant sections of the river, where it ranges from 666 to 1,480 Bq/kg.

The Dosimetry Monitoring Department of the Combine Production Association, with the participation of specialists from the USSR Academy of Sciences and the Ukrainian SSR Academy of Sciences, conducted a study of the radiation situation in the city of Slavutych.

The gamma background dose rate throughout the city ranges from 0.4 to 0.7 $\mu\text{Sv/hr}$, and soil contamination with beta-active particles is 10 particles/ cm^2/min (100 particles/ cm^2/min is acceptable).

However, in the areas adjacent to the city, the situation is significantly worse, with gamma background levels of up to 4 $\mu\text{Sv/hr}$ and beta radiation levels of up to 7,000 particles/ cm^2/min . Moreover, more than 90% of the active substances are concentrated in a 3-cm-thick surface layer.

Although these values do not exceed the temporarily permissible limits introduced in 1986, they are significantly higher than those established by the NRB-76 standard.

During dosimetric monitoring of personnel and equipment exiting the 30-kilometer zone, several instances were identified where contamination of clothing and vehicles significantly exceeded permissible levels.

Beta-active particle contamination of uniforms, personal belongings, bedding, and tents of military personnel ranged from 100 to 20,000 particles/ cm^2/min .

At the Dityatki checkpoint alone, more than 140 vehicles were identified with gamma radiation levels ranging from 2 to 30 $\mu\text{Sv/hr}$.

These facts indicate the insufficient effectiveness of preventative measures taken by the administration to reduce personnel exposure, and weak oversight of compliance with personal radiation safety standards.

The management of organisations working in the zone does not strictly monitor the wearing of dosimeters by subordinates. Cases of employees exceeding the permitted radiation dose are not investigated.

During 1987, doses exceeding 250 mSv, a level considered potentially dangerous, were received by 8 people at the Chernobyl Nuclear Power Plant, 12 people at the Chernobyl Nuclear Power Plant Control Centre, and 3 people at other organisations.

A timely and thorough investigation of significant overexposures should help identify the true causes of high gamma radiation levels in a number of areas and address them.

Information about the unfavourable radiation situation in the city of Slavutych and the insufficient effectiveness of preventative measures to reduce radioactive contamination of clothing, vehicles, homes, etc. is partially known to individuals working in the zone, which could lead to social tension.

During the clean-up of the accident, 15 radioactive waste disposal sites (RWDS) were established within the zone.

The complex situation last year prevented them from being equipped in accordance with radiation safety requirements in some cases, as natural depressions (ravines, etc.) were sometimes used.

However, the issue of monitoring the condition of RWDS and studying their impact on the environment, primarily groundwater, which can be a major factor in the removal of radioactive substances from the zone, remains unresolved.

On June 11th of this year, a scientific and technical council of the USSR Ministry of Defence Scientific Centre was held in Chernobyl, with representatives of interested agencies participating. The topic was "Dynamics of the Radiation Situation Over the Year and Decontamination Problems."

Representatives from the Ministry of Defence and several academic institutes expressed the opinion that further decontamination work was inadvisable due to its low effectiveness and significant human and material costs. The management of the Combine Production Association and the Chernobyl Nuclear Power Plant insisted on continuing the work.

The Council decided to submit a proposal to the Authorities to conduct an in-depth study of this issue, involving all relevant agencies, for a final decision.

Monitoring of the condition of Unit 4 and the Shelter continues. A fairly stable decrease in the monitored parameters is being recorded. The temperature of the collapsed section is 90°C, and the gamma background level above it is 15,000,000 µSv/hr.

A commission consisting of representatives from the Ministry of Atomic Energy, the Ministry of Medium Machine Building, and the USSR Academy of Sciences conducted a study of the unit's condition and its monitoring. The results concluded that detailed studies were necessary to determine the Shelter's status, classifying it as a "subcritical assembly," a "radioactive waste repository," or a "new type of nuclear hazardous facility."

Despite the complexity of the situation, the deadline for a final decision has been set for 1988–1989. However, experts believe it is necessary to develop measures to maximise efforts to expedite the consideration of this issue.

At the same time, measures must be implemented to ensure monitoring of the reactor's mass through a scientifically sound selection of monitoring points.

The existing unit diagnostic system does not provide full information on the state of the reactor's mass in the event of a change in the situation (ingress of large amounts of moisture, seismic impacts, or accidental mass movement).

The boric acid solution irrigation system for the debris requires improvement; currently, it can only perform preventative functions.

During the past period, repair and restoration work continued at Unit 3. Of the 1,164 rooms, decontamination has been completed in 1,146. Inspection, repair, and replacement of primary and auxiliary equipment are underway. However, a number of technical difficulties arose during the repair process, hindering the timeliness and quality of the work.

This primarily concerns the replacement of ball flow meters (238 to be replaced), both process channels (222 to be replaced), as well as the elimination of defects (cracks, cavities) in the separator drums, the multiple forced circulation circuit, and the water-balancing pipelines.

Due to a lack of necessary supplies, the issue of replacing individual units and devices, particularly in the gas circuit, remains unresolved.

The pace and quality of work is negatively impacted by a shortage of qualified personnel, who must be regularly taken off work due to significant radiation exposure.

At the same time, the plant's engineering and technical personnel and the Combine continue to express the opinion that it is inadvisable to launch Unit 3.

The main arguments put forward are the following:

- the lack of study of the impact of Unit 4, which is loaded with a significant amount of absorbing materials (clay, lead, dolomite, etc.) and is located on the same foundation as Unit 3, on the structure of the unit undergoing repair;
- the difficulty, and in some cases the impossibility, of ensuring high-quality repair and restoration work, which will lead to a decrease in the reliability of the primary and auxiliary equipment;
- significant radiation exposure (despite decontamination) for maintenance personnel will create difficulties in staffing shifts with qualified personnel.

At the same time, experts believe that relatively high levels of radiation at the unit's premises could lead to violations of equipment operating procedures due to personnel's reluctance to frequently visit these areas.

During the operation of Units 1 and 2 over the past period, instances have been identified indicating ongoing violations of process discipline requirements and insufficient management oversight.

During this time, more than 10 emergency shutdowns and reductions in reactor power occurred, including due to bearing vibration and a malfunction in the speed control system of generators No. 3 and 4, the activation of the automatic protection AZ-1 and AZ-2 at unit No. 1, the activation of the main safety valves at generator No. 3, etc.

These and other deficiencies indicate the poor quality of repair and restoration work during the reactor's preparation for start-up, as well as during the shutdown of Unit 2 for scheduled maintenance in April of this year.

This is also supported by the improper actions of Senior Unit Control Engineer V.V. Astakhov, which led to partial dehydration of the core of Unit 1, which was undergoing maintenance.

The current situation requires additional measures to tighten process discipline and strengthen oversight of work performed by shift supervisors, workshop supervisors, and plant management.

To ensure the normal operation of Units 1 and 2, measures must first be taken to improve the radiation situation in the central halls (CH). Failure to reload spent fuel from the spent fuel pools to the solid nuclear waste storage facility in a timely manner due to insufficient technical equipment leads to increased gamma radiation levels and unnecessary exposure of personnel. To resolve this issue, the plant requires assistance in expediting the delivery of additional refuelling equipment.

More than 39,000 military and civilian personnel are involved in the clean-up efforts following the accident in the zone.

However, due to poor work organisation and significant distractions from work not directly related to the accident, a significant number of personnel in the zone are not being used for their intended purposes.

These circumstances are leading to a slowdown in the work process and unnecessary overexposure of personnel.

Construction in the city of Slavutych continues. According to experts, the pace and quality of work are being negatively impacted by a shortage of reinforced concrete structures, concrete, bricks, and large-diameter pipes, as well as frequent power outages.

As a result, the technological sequence of work and building codes are not being followed in a number of areas. This primarily concerns water, sewer, and heating mains (commissioned in 1987).

The Chernobyl Nuclear Power Plant and the surrounding area are regularly visited by media representatives and specialists from Western countries. Since December 1986, more than 160 foreigners have visited the zone. In their interactions with Soviet specialists, they make persistent attempts to gather information about the consequences of the accident, the measures taken to eliminate them, the results of scientific research conducted in the zone, the morale of the workforce, material costs, the prospects for using RBMK reactors, the development of nuclear energy, and so on. In addition, their frequent visits lead to the distraction of the management and staff of the station and the Combine Production Association from performing their immediate duties in difficult circumstances.

The KGB Directorate, in cooperation with the Ministry of Internal Affairs and the administration, is taking measures to ensure access to the zone, secure the station, and maintain the secrecy of research conducted by the Ministry and the USSR Academy of Sciences. At the same time, it is necessary to expedite the construction of engineering protection measures along the perimeter of the second stage, access to which for those working at the station is currently practically limited.

The issue of residents of the region who voluntarily re-evacuated to the 30-kilometer zone, currently numbering over 500, remains unresolved.

The moral and political situation among the staff at the plant, the Combine Production Association, and other organizations and institutions operating in the zone is normal.

Among the issues of greatest interest to employees are the following:

There is dissatisfaction with the state of medical care in the zone, as well as a proposal to abandon the rotational work system, as this reduces responsibility for the quality of health monitoring.

Workers are requesting that one canteen be relocated to the village of Zeleny Mys to provide meals for those on diets.

Most employees intending to relocate to Slavutych are interested in the possibility of receiving an official certificate from the USSR Ministry of Health regarding the safety of living in the newly built city, especially for children.

A certain portion of the staff is interested in receiving information about the prospects for maintaining their benefits.

Among construction workers in Slavutych, the greatest concern is caused by shortcomings in the operation of retail and service enterprises. There are also complaints about the poor quality of food and transportation. Most construction workers are dissatisfied with the provision of housing and various wage benefits (primarily seconded employees of the Combine).

We are monitoring the situation.

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