

Information on the work carried out at the "Shelter" facility and the radiation situation in the city of Slavutych

April 12, 1990

Secret

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

During March 1990, the KGB Directorate of the Ukrainian SSR for the city of Kiev and Kiev Region continued to implement planned counterintelligence measures for the Chernobyl Nuclear Power Plant and the organisations and institutions involved in the clean-up efforts.

Overall, the operational situation during this period was characterised by a certain stability. However, with the approaching fourth anniversary of the accident, the number of foreigners of all categories has increased significantly, indicating continued interest on the part of the West in the problems of clean-up efforts.

Power Unit 1 operated reliably for a month, without any emergency shutdowns, power reductions, or major failures of primary or auxiliary equipment. According to the schedule, the power unit was scheduled to be shut down on March 10 for a scheduled maintenance. However, due to a delay in the commissioning of Power Unit 2, as well as deficiencies in logistical support, a decision was made to postpone the start of the maintenance. A scheduled unloading of the power unit was completed on March 31 of this year.

In preparation for the repairs, management personnel are facing the same difficulties that arose during the shutdown of Unit 2. This primarily concerns a shortage of qualified repair personnel, both within the plant's departments and among contractors. The Chernobyl Nuclear Power Plant continues to experience serious supply problems. Despite the urgent need to replace several removable parts of the main circulation pumps (MCPs), the plant is currently missing these parts.

There are also problems with other spare parts and materials. Some specialists have expressed the opinion that a more detailed solution to the issue of extending the service life of the main circulating pumps is needed. This is due to the fact that three of the eight main circulating pumps at the unit have operated for over 60,000 hours and require special comprehensive studies.

On March 20 of this year, Unit 2 was recommissioned following the completion of a medium-scheduled maintenance.

Analysing the reasons for the two-week delay in the unit's repairs, operational and official sources note that this, including at the final stage of the work, was due to unqualified actions by both operational and maintenance personnel. These conclusions are supported by the following examples.

On March 3, during a test run of the main circulation pump (2GCN-12), due to the fault of the operating personnel in Reactor Shop No. 1, the sealing water supply systems were not activated, which could have led to the failure of the main circulation pump. Despite an investigation and the corresponding findings regarding those responsible, on March 9, during

a repeat test run of the 2GCN-12, violations of the process regulations were committed again, leading to the failure of the oil supply system to the radial thrust bearing, which failed. These circumstances led to the pump's failure. An investigation by operational personnel revealed that the situation was aggravated by violations committed during the bearing assembly process during repairs. Administrative measures were taken against the responsible mechanics, A. Ya. Stepanov and N. I. Vetchinov.

During the process of monitoring the geometric dimensions of the reference fuel channels (used to assess changes resulting from exposure to neutron fluxes), it was determined that the diameter of two of them was approaching the maximum permissible values, indicating an increased creep coefficient (zirconium) in channels Nos. 40-20 and 40-60.

The plant's relevant services decided to replace these fuel channels. However, the use of insufficiently qualified welders for this operation meant that the required weld quality was only achieved on the third attempt.

On March 3 of this year, due to the unqualified actions of Senior Unit Control Engineer V.V. Duda, the overflow of the cooling water holding tanks located in Building 86 was not prevented in a timely manner, resulting in the spill of several cubic meters of active cooling water. Only due to the design of the rooms where the tanks are located additional radioactive contamination of the room did not occur and the water did not enter the sewer system.

On March 26, during routine maintenance, uncoordinated actions by operational personnel located in the unit control room and shift personnel servicing the thermal automation and measurement equipment resulted in the shutdown of the 2GCN-11 unit, which triggered emergency protection system No. 1 and reduced the unit's power by 20%. These facts were analysed with the participation of operational sources and confirm previously reached conclusions that, in some cases, individuals without the required practical skills are allowed to perform duties in critical areas.

Management is failing to take the necessary measures to increase the personal responsibility of those responsible and to punish those responsible.

Over the past period, Unit 3 has operated reliably, without any emergency shutdowns or power reductions. However, data has been obtained indicating operational deviations in some units, which could lead to negative consequences.

On March 14, reports were received of an increase in hydrogen concentration in the emergency cooling water tank of the control and protection system. While the norm is no more than 3%, the hydrogen content fluctuated between 3 and 10%. An investigation determined that the cause of this phenomenon was a design flaw in the purge system, which led to the formation of stagnant zones. After informing management, measures were outlined to correct the deficiencies during scheduled maintenance. At the same time, monitoring of the situation was intensified.

During this same period, information was received about a significant decrease in resistance in one of the exciter bearings of the 5th generator, which could have led to an emergency

shutdown of the turbine. Investigation into the cause yielded no positive results. Based on the manufacturer's permission, the equipment continues to be used.

On March 21 of this year, Agent Krylov reported the detection of a slight vapor in room 404/1. A technical inspection of the room revealed that the source of the steam leak was a leak in one of the ball flow meters (SHADR). An analysis of the possible causes of the defect revealed that approximately two hundred SHADRs had previously been installed at the unit, the housings of which were made of metal from a defective melt. Due to the lack of access for specialists to the room while the reactor was operating, monitoring of the situation has been intensified.

On March 29, information was received regarding the discovery of petroleum products in the cooling water pressure basin. These circumstances may lead to reduced turbine condenser efficiency and require a power reduction. A prompt and official investigation into the causes of the incident was launched.

During the operational monitoring of the situation in areas ensuring the operation of the power units, data was obtained indicating the insufficient reliability of the equipment in operation and unqualified personnel actions.

Thus, on March 19 and 27, due to malfunctions in the Skala centralised control system (CCS) of Unit 1, erroneous reactivity margin calculations occurred, leading to unfounded decisions to cancel the refuelling.

A candidate for the recruitment "SAG" received information about possible failures in the first stage of the reliable power supply system, as the batteries used in the system had almost exhausted their service life and required replacement.

As a result of unqualified actions by electrician V.P. Grinchuk, a brief outage of the 750 kV high-voltage line (Chernobyl NPP - Khmelnytsky NPP) occurred on March 16.

On March 7, information was received from Agent Ovod regarding violations of the water chemistry regime in the special water treatment system due to alkali entering the clean condensate tank. This was caused by violations of the process regulations by chemical plant operators N.A. Drogunov and A.L. Kudryashov. An investigation was conducted into these facts. No malicious intent was established in the actions of the perpetrators. Plant management has taken the necessary administrative measures against them. At the same time, measures are being developed to improve the reliability of the Skala centralized communication system and emergency power supply.

Work continued at the Shelter facility throughout March.

The physical parameters monitored by the Shelter information and diagnostic system (IDS) are characterized by the following data:

- gamma background level above the collapse site – 1,780,000 $\mu\text{Sv/hr}$;
- gamma background level beneath the shaft – 16,140,000 $\mu\text{Sv/hr}$;
- neutron flux density – 7.8 neutrons/cm²/sec;
- average temperature in the steam distribution corridor – 19.2°C.

Specialists from the Kurchatov Institute of Nuclear Energy's Integrated Expedition continued drilling boreholes from room 012/16 toward the spent fuel pool. A survey revealed that the pool contains water, as well as individual, well-preserved fuel assemblies or additional absorbers (the exact location cannot be determined).

The effectiveness of work carried out at the facility is being negatively impacted by the organisational changes associated with the transfer of the facility to the Kurchatov Institute of Nuclear Energy, as well as the reorganisation of the Integrated Expedition. During the implementation of these measures, certain structural units within the expedition were disbanded, while they had not yet been established at the station. This particularly concerns the services responsible for ensuring radiation safety monitoring during the work being carried out.

Some specialists from the Integrated Expedition express the opinion that their organisation is in a difficult financial situation, and therefore the administration has been forced to cease work on a number of contracts of particular scientific and practical interest in order to continue work on the Shelter. It has also been suggested that attention to the facility has been declining — when the military construction team was transferred to NPO Pripyat, the terms of their payment for their work at the Shelter were not agreed upon in a timely manner.

As a result, command decided to stop deploying military personnel for decontamination work at the Shelter, which led to a deterioration in the radiation situation in several areas. Following intervention by the USSR Ministry of Atomic Energy, normal operations were restored. However, the current permit for triple pay was extended only until April 15 of this year, after which the situation could be repeated.

Considering the extremely serious negative consequences, primarily of a socio-psychological nature, for the population in the event of any complication of the situation at the Shelter facility, operational sources express the opinion on the need for a rapid solution to the existing organisational and financial problems.

In accordance with a decree of the USSR Council of Ministers, an interdepartmental commission worked at the station in the second half of March to prepare for the transfer of station security from the battalion of military unit 3031, composed of conscripts, to a battalion staffed by warrant officers.

After completing the work, an agreement was reached on the size of the newly created unit; however, problems related to providing warrant officers with housing could arise.

Among the circumstances crucial to the reliable operation of the plant, operational and official sources highlight the following.

Personnel transport from the city of Slavutych to the Chernobyl Nuclear Power Plant is carried out by rail. Between Slavutych and the Chernobyl Nuclear Power Plant, there are two railway bridges across the Dnieper and Pripyat rivers. The bridge over the Dnieper River is guarded, while the bridge over the Pripyat River is not provided with either physical or technical security.

Any unforeseen developments in this area could lead to extremely serious consequences. Despite repeated appeals from the station's management, no appropriate decision has been made by the relevant departments of the USSR Ministry of Railways.

During this period, the reorganisation of the Pripyat Scientific Production Association and the staffing of newly created structural units continued.

Negotiations held at the IAEA in early March between representatives of the USSR Ministry of Atomic Energy and this organisation demonstrated genuine interest on the part of foreign countries in participating in the work of the international scientific centre. Preparations for an agreement on this issue between the Soviet side and the IAEA have begun and are underway. At the same time, a search is underway for partners to organize bilateral cooperation without the mediation of the IAEA.

An agreement was signed with the Swiss company Risitek for the supply of equipment for the decontamination of scrap metal located in the zone.

Difficulties arose in implementing the decision of the State Commission of the USSR Council of Ministers for Emergencies to bury 317.8 tons of meat, previously transported from the Byelorussian SSR to the Georgian SSR, within the zone. Both Ukraine and Belarus categorically object to burying the meat within the republics without specially equipped "burial grounds." Since the construction of these "burial grounds" will take a considerable period of time, the question arises about the future of the refrigerated sections containing the meat located at Vilcha station.

In the event of a refrigeration equipment failure or deliberate damage by maintenance crew members, especially during the spring and summer, the situation could become seriously complicated and require emergency measures. To prevent this, it is advisable to expedite the adoption of mutually agreed-upon decisions on this issue.

Fire safety is a key issue for the zone.

Over a four-year period, significant amount of dead wood and windfall have accumulated in the forested areas that have not undergone sanitary clearing, and the fields are covered with a layer of dry grass several centimetres thick. The area contains a large number of residential and agricultural wooden buildings. All this, coupled with the presence of vehicles, power lines, industrial activity, and the constant intrusion of poachers into the area, creates a real threat of widespread fires for various reasons.

These conclusions are confirmed by the 20 fires that occurred in March. Despite the absence of material damage, such events are highly undesirable due to the significant release of radioactive aerosols into the atmosphere. Despite the measures taken (continuous surveillance, including the use of a helicopter, the installation of mineralized strips, etc.), the units of the Kiev Regional Executive Committee's Fire Department, located in the zone, are unable to fully carry out their assigned tasks due to the lack of all-terrain firefighting equipment.

Furthermore, the current weather conditions could seriously worsen the fire hazard in the zone. These circumstances require the adoption of appropriate measures by the Ministry of Atomic Energy and the USSR Ministry of Internal Affairs.

In March of this year, there was a slight deterioration in the radiation situation in the air and water basins, primarily due to strong winds and intense dust transport. As a result, the amount of aerosols in the air increased 10 to 40 times compared to February and January, with the maximum value recorded near the village of Starye Shepelichi. Radionuclide levels in the Pripyat River increased. However, radionuclide concentrations did not reach maximum permissible levels.

The establishment of the Pripyat Scientific and Production Association and the layoffs carried out among employees led to a worsening social situation in the workforce of the motor transport enterprise and the Dosimetry Control Department.

The main causes of dissatisfaction include the dismissal of employees working in remote cities across the country and changes in wage conditions, including the denial of additional pay for particularly hazardous working conditions. The association's leadership is taking steps to normalise the situation. Among the issues of concern to a small group of individuals is obtaining permanent residence registration and housing in Kiev.

The ambiguity and uncertainty of the previous decisions regarding these employees led to A.S. Yurchenko, an employee of the Joint Venture "Complex," going on a hunger strike on March 5th. Only after the intervention of representatives of the Government Commission for the Elimination of the Consequences of the Accident and the USSR Ministry of Atomic Energy did some clarity begin to emerge, and paths for a positive resolution to this issue were outlined, which contributed to the normalisation of the situation. Among the most important problems that could have far-reaching negative social and other consequences, operational sources highlight the problem of assessing the radiation doses received by liquidators during the first weeks of the accident in the absence of adequate instrumental monitoring.

At the Chernobyl Nuclear Power Plant, the restoration of exposure data is carried out using a calculation method approved by the USSR Ministry of Health in 1986 and route sheets completed by liquidators. Based on the calculation results, certificates of received doses are issued, signed by the General Director of the Chernobyl Nuclear Power Plant. A significant number of individuals, including residents of evacuated communities, may demand a review of their received doses.

The significant social significance of resolving this issue requires a reconsideration of the attitudes of relevant agencies, primarily the Ministry of Atomic Energy, the Ministry of Defence, the Ministry of Health, and the USSR Academy of Medical Sciences. According to operational sources, proven methods and the results obtained from them should be legalised to prevent potential negative situations caused by the requirement to link received radiation doses with the resulting illnesses.

Over the course of a month, the radiation situation in Slavutych remained unchanged. A commission consisting of specialists from the Institute of Biophysics of the USSR Ministry of Health, the USSR State Hydrometeorological Committee, the All-Union Research Institute of

Nuclear Power Plants, the Ukrainian branch of the All-Union Research Institute of Agricultural Radiology, and the Chernobyl Nuclear Power Plant Radiation Safety Department completed its work on the assignment of the Government Commission for the Elimination of the Consequences of the Chernobyl Accident to assess the radiation doses to residents of Slavutych.

As a result, at a meeting held from March 12 to 14 of this year, specialists from the All-Union Research Institute of Nuclear Power Plants and the Chernobyl Nuclear Power Plant Radiation Safety Workshop were unable to defend their position that the radiation doses of certain categories of city residents exceeded the limit established by NRB-76 (radiation safety standards), for Category B populations, no more than 5 mSv per year.

The meeting's resolution noted the concerns of Slavutich residents regarding the radiation situation, as Resolution No. 315 of the Council of Ministers of the Ukrainian SSR of December 14, 1989, applies to all populated areas, including those surrounding the city, but does not apply within the city itself. Therefore, it is necessary to take measures to improve the environmental and socio-psychological situation.

Over the past period, 16 groups of foreigners, totalling 56 people, have visited the 30-kilometer zone, including 12 specialists (USA, England), 15 representatives of public organizations (England, USA, France, Canada), and 29 media workers (USA, France, Japan, Germany, the Netherlands, Sweden). Among the foreigners, six individuals of Ukrainian descent were identified (USA - 1, Canada - 5). The actions of four of them (Yaroslav Koshev, Mark Boytsun, Vadim Popov, Mykhailo Botsyurkiv) showed signs of possible involvement with the security services and nationalist organizations.

Based on the Centre's information, two foreigners (Ronald Burbridge and Galina Smith, from England), members of the State Energy Commission delegation, were investigated. Information was received regarding Galina Smith, a former Soviet citizen who left the country in 1975, indicating that she maintained contacts with intelligence officer George Froud.

In connection with preparations for a video film by the Japanese television company NHK, materials on members of the Japanese delegations who visited the zone in 1988–1990 were summarised.

The analysis suggests that Japan has a special program to study the Chernobyl accident, its consequences, and the clean-up efforts. Coordination of actions by most specialists and media representatives is clearly evident. This is evidenced by the focus and nature of the questions, attempts to collect and remove soil and vegetation samples, and measurements of the radiation situation at locations marked on their maps.

We continue to implement the planned activities.

This has been reported to the 6th Directorate of the USSR KGB and the Kiev

Attachment: Information on the city of Slavutych, No. 39/705, 3 pages, classified.

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Head of the KGB Directorate of the Ukrainian SSR for the city of Kiev and the Kiev Region
Major General Yu. M. Shramko