

Memorandum on measures to ensure the security of the Chernobyl NPP and the "Shelter" facility

September 6, 1991

Secret

On the situation at the Chernobyl Nuclear Power Plant and in the Exclusion Zone

In August of this year, the KGB Directorate of the Ukrainian SSR for Kiev and the Kiev Region continued to implement planned measures to ensure the safety of the Chernobyl Nuclear Power Plant, the Shelter, and organisations and institutions located in the Exclusion Zone.

New developments in the situation during this period included:

- the commencement of practical research by specialists from the Korea Atomic Energy Institute;
- the signing of an order and the beginning of the development of a feasibility study for the decommissioning of the Chernobyl Nuclear Power Plant by the USSR MAEP commission;
- the situation at Spetsatom has worsened due to significant financial difficulties caused by a lack of budgetary allocations.

The situation at the Chernobyl Nuclear Power Plant remains quite challenging following the decision to decommission it early.

In response to the relevant resolution of the Supreme Soviet of the Ukrainian SSR and the Cabinet of Ministers of the USSR, a meeting of representatives of the workforce was held, at which an appeal was adopted to the management of the USSR MAEP regarding the advisability of decommissioning the station after the resource for the "technological channel-graphite" gap has been exhausted, taking the necessary measures to ensure the social security of personnel released after the units are completed, and completing the construction of the city of Slavutych.

The USSR Ministry of Energy and Nuclear Policy responded to this request quite quickly, and on August 23 of this year, an order was signed "on measures for implementing the program for decommissioning the Chernobyl Nuclear Power Plant units." According to this order, feasibility studies for decommissioning options must be submitted by September 20, 1991. The NPP's management is concerned that the plant may face unresolved problems in the future, caused by the following circumstances.

The main suppliers of components and spare parts are located outside of Ukraine. Given the republics' declaration of independence, there are real grounds for some of them to demand payment for their supplies in freely convertible currency.

In particular, this is evidenced by a letter from the management of the Ukmerg Plant "VENIBE"¹ (Lithuanian Republic) stating that, in connection with the purchase of imported materials abroad, the plant must provide partial payment in hard currency or barter for 12 types of materials, most of which are unrelated to the components supplied by the plant to

the Chernobyl Nuclear Power Plant. Since the plant lacks the necessary currency for this, as well as the requested materials, there is a real risk of non-fulfillment of orders.

An increase in the number of such letters, on the one hand, and a failure to take appropriate measures, on the other, could lead to the Chernobyl Nuclear Power Plant being forced to shut down its power units due to technical issues and the impossibility of safe operation.

Another important circumstance is that, while an increase in the basic salaries of Chernobyl Nuclear Power Plant workers may be possible under the conditions of the transition to a market economy and rising prices, serious difficulties may arise with the payment of compensation for work in the radioactive contamination zone, as these payments are made from budgetary allocations, an increase in which is unlikely under current conditions.

This circumstance creates a real threat of increasing social tensions within the workforce. The issue of increasing the cost of a kilowatt-hour, raised by the Chernobyl Nuclear Power Plant administration, could lead to a further escalation of the price race, with all the attendant negative consequences.

A rather difficult situation is developing at PO Spetsatom.

At present, it can be concluded with almost certainty that none of the objectives set when the association was created have been achieved, with the exception of the formation of an emergency response team. The technical equipment has remained virtually unchanged since 1986, despite the initial expenditure of millions of roubles. The association's leadership sees the main reason as opposition from the USSR MAEP, but a number of experts believe the reasons for the current situation are more complex.

Currently, the management of the Spetsatom Production Association has submitted a proposal to the Cabinet of Ministers of the Ukrainian SSR to transfer the association's subordination to Ukraine.

In connection with the events taking place in the country on August 19–21 of this year, the Pripyat Production Association received a notice from the European Commission to terminate cooperation with the Chernobyl Centre for International Research (CIR) program. However, this decision was subsequently overturned.

Power Unit 1 operated mostly reliably at 70% capacity, but on August 3, 1991, an emergency shutdown was triggered by a leak in a weld on the feedwater pipeline on the right side of the reactor (the system that supplies condensate from the clean condensate tank to the reactor circuit). The increase in leaks led to steam filling the room where individual devices for the containment leakage monitoring systems, physical power distribution monitoring, and process channel integrity monitoring systems are installed. Therefore, the decision was made to perform an emergency shutdown of the unit. On September 7, 1991, after completion of repairs, the power unit was recommissioned.

Repair work continued at Unit 2.

The official investigation into the flooding of the reactor shop with radioactive water in August of this year established that the cause of the incident was the unqualified actions of personnel

in Reactor Shop No. 1 and the Centralised Repair Shop. There was no overexposure to personnel during the decontamination of the rooms.

Given the previous violations associated with emptying the multiple forced circulation circuit, we discussed with the plant's director and chief engineer the need to tighten their oversight of technological discipline. Repairs continue to be associated with logistical difficulties and a shortage of repair personnel.

This latter circumstance is further aggravated by the fact that some maintenance personnel, due to delays in repairs, particularly at Unit 3, are approaching the maximum annual radiation dose of 40 mSv, established by the order of the USSR MAEP. Currently, the issue of increasing the maximum dose from 40 to 45 mSv is being considered.

The third power unit operated reliably in August of this year, without any shutdowns. Nuclear power plant specialists and firefighting personnel note that despite the relatively high efficiency of the aerosol water-carbon fire extinguishing system for cable equipment developed by VNIPIET (Leningrad), the implementation of this invention, crucial for the safe operation of power plants, is being held back due to a lack of necessary financial and material support. They believe that any delay in this important issue is fraught with serious negative consequences.

The situation at the Shelter facility remains challenging. To date, the new "Regulations for the Operation of the Shelter Facility" have not been implemented or approved by the USSR MAEP, preventing the necessary scientific justification for organising work to ensure nuclear, radiation, and general construction safety. According to experts, the difficulty in developing safety criteria for the facility lies in the fact that the physicochemical processes occurring in the fuel-containing masses, characterised by exceptional dynamism and unpredictability, are difficult to predict.

In the theoretical justification for nuclear safety developed by the Kurchatov Institute of Nuclear Energy, the "Shelter" facility is recognized as nuclear hazardous. The preliminary version of the "Regulations..." designates it as a "hazardous" facility, although such a concept is not provided for in the "Nuclear Safety Rules."

The introduced uncertainty allows for the safety requirements for the Shelter to be interpreted as for an operating nuclear power plant, which, according to leading specialists from the Kurchatov Institute of Atomic Energy, in most cases does not correspond to the actual situation. At the same time, the absence of new "Regulations..." leads to repeated unjustified violations of dosimetric monitoring and personnel overexposure.

In August, work continued to search for sources of water entering the Shelter. Preliminary data obtained indicates that one possible route for water to enter the facility is through groundwater seepage through leaky foundation sections. Groundwater levels have risen from 10.0 meters before the accident to 4.8 meters currently. The Shelter's deepest drainage pit is 6.2 meters deep. Furthermore, during a survey of the premises, evidence was found of industrial water seeping from the utility lines of Unit 3. Work to identify the sources of water infiltration continues.

Due to the impossibility of further use of the temporary storage facility for liquid radioactive waste on one of the 3rd stage water pipelines, drilling operations at the Shelter have been suspended.

The radiation situation at the site remains stable. The average physical parameters measured by the Shater IDC were:

- gamma background level above the collapse site – 14,660,000 $\mu\text{Sv/hr}$;
- gamma background level beneath the apparatus shaft – 11,880,000 $\mu\text{Sv/hr}$;
- neutron flux density – 7.7 neutrons/ cm^2/sec ;
- average temperature in the steam distribution corridor – 22.2°C

Comprehensive exercises conducted in August of this year to test the reliability of the Chernobyl Nuclear Power Plant's security system showed that the following issues require urgent solutions:

- the need to quickly complete the reconstruction of the engineering and technical security equipment (ETSE) around the plant's perimeter;
- the need to accelerate the staffing of military unit 3031 to its full strength, as the shortage is over 20%, leading to significant overtime among inspectors and potentially causing a social upheaval.

A study has been conducted, and measures are being developed to strengthen the facility's anti-sabotage security, taking into account the possible actions of sabotage and reconnaissance groups from foreign countries and hostile individuals in the station area.

There have been no significant changes in the radiation situation over the past period. As before, strontium-90 concentrations exceeding the permissible limits were observed in two wells of the cooling pond drainage curtain, as well as in the "Red Forest" temporary radioactive waste containment site (TRWS).

The situation surrounding the start-up of the Kombitek metal decontamination plant remains challenging. Due to the Soviet Union's inability to pay the next instalment of 717,000 German marks, the foreign company categorically refuses to begin installation work.

This condition was confirmed during the latest negotiations between the Pripyat Scientific Production Association Administration and the deputy head of Risitek, Jan Fiala. The situation is further aggravated by the fact that on August 22 of this year, Risitek imposed penalties of 26,000 German marks on the USSR Vnesheconombank for late payments. Given the extremely difficult economic situation in the foreign exchange market, and the Kombitek joint venture program not being considered a priority project, there is a real risk that, other than the penalties, which will continue to mount, the Soviet side will receive nothing under the contract.

To date, despite repeated reminders from NPO Pripyat, the Kombitek joint venture has not received permission from the Ukrainian Ministry of Chernobyl to operate.

Kompleks specialists continued to bury meat produced in 1986 in a burial site (68 tons have been buried). The work is being carried out under the supervision of specialists from the Byelorussian SSR.

During August, 10 foreign delegations, totalling 60 people, visited the 30-kilometer zone. Among them were journalists from Hungary and France; representatives of charitable societies from England and Switzerland; a UN delegation; two groups of environmental specialists from the United States; scientists from the United States working on a government-funded international program; and leading French radiologist Pierre Pelerin.

The practical implementation of a previously reached agreement to conduct joint research at the Chernobyl Center for International Research has begun. On August 15, representatives of the Korea Atomic Energy Institute arrived in Chernobyl.

From August 17 to 31, Pelerin, one of France's leading radiology specialists, visited the zone. The purpose of his visit was to become familiar with the level of organisation of scientific research at the Shelter facility, as well as the organization of dosimetric monitoring. He also has expressed an interest in the "squatters." Pelerin's well-known position, expressed back in 1986, that the Chernobyl disaster does not actually pose the danger claimed by the media, was confirmed during this visit.

During his conversations with specialists, he repeatedly stated that even in Chernobyl, one could live permanently without significant harm to one's health. He stated that, if allowed, he would be willing to buy one of the houses in the private sector of Chernobyl, where he could come for vacation. He repeatedly expressed irritation at the statements in the French press by V.M. Chernousenko, a doctor of physical and mathematical sciences at the Institute of Theoretical Physics of the Ukrainian Academy of Sciences, who claims that the Chernobyl nuclear power plant accident killed 10,000 people, not 31.

However, Pelerin's primary focus was on studying issues related to possible options for reconstructing the Shelter or creating a new facility. He proposed the feasibility of engaging the French firm BOOYG, with one of whose directors Pelerin allegedly has friendly relations, to develop the design and build the future Shelter. This firm specialises in the construction of large-scale arched structures, bridges, and other structures.

In the Soviet Union, it is known for the construction of the Scientific and Technical Complex for Eye Surgery. Pelerin was asked to submit a request for a foreign company to the organising committee for the consideration of plans for the future of the Shelter, operating under the auspices of the Ministry of Chernobyl of the Ukrainian SSR.

The Regional Council of People's Deputies and the KGB of the USSR were informed.

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