

Information message on the situation at the Chernobyl NPP and in the 30-kilometer zone

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Secret

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

The KGB Directorate of the Ukrainian SSR for the city of Kiev and Kiev Region continued to carry out KGB operations at the Chernobyl Nuclear Power Plant and at enterprises and organisations involved in the clean-up efforts.

Over the past period, the operational situation in the zone has been relatively stable. Its determining factors were ongoing work at the Shelter facility, problems related to the repair of the spent fuel pool (IBV-1) at Reactor No. 1, the emergency shutdown of one unit and the power reduction of two units following the July 5 accident, and the implementation of decisions to transfer personnel to a shiftless work schedule.

The main equipment of Unit 1 operated reliably throughout this period. Failures in the centralised monitoring system for the Skala reactor were analysed with the participation of specialists.

It was determined that the most likely cause of the malfunctions was the failure of semiconductor devices that had previously been mounted on similar devices in Unit 4 and were exposed to high levels of radiation.

During preparatory work for the start of repairs to the spent fuel pool (IBV-1), after unloading spent fuel assemblies from their designated locations, a sharp increase in gamma radiation was recorded as the water level dropped. After taking the necessary safety measures, the water level was lowered to 4 meters. On July 25, a commission of plant specialists studied and mapped the debris at the bottom of the pool.

According to the data received, the pool contains 13 spent assemblies, 40 intact and cut control and protection system (CPS) rods, and approximately 10 other special items. The commission believes that a nuclear hazard is excluded. A program for completing the clean-up of IBV-1 has been prepared and submitted for approval.

During these operations, contamination of the central hall was allowed to occur, with surface contamination levels reaching 27,000 or more beta-particles/cm²/min, compared to the standard of 8,000 particles/cm²/min.

Therefore, decontamination work has begun in the hall.

The situation is gradually returning to normal. Given the circumstances uncovered in the spent fuel pool, we are taking measures, using our existing operational capabilities, to examine the situation in similar areas of Units 2 and 3.

Unit 2, except for the emergency shutdown on July 5, was operating in a stable manner.

On July 5 at 7:22 PM, an accident occurred at the Chernobyl Nuclear Power Plant's outdoor switchgear (OSG) — the destruction of the reactor core due to internal damage to a high-voltage bushing.

An analysis of the causes, using all available resources, revealed that it arose as a result of three main factors:

- an explosion of the high-voltage bushing of the phase "B" reactor of the Vinnitsa line VL-750. There have been no bushing failures since the start-up of the ORU-750. Routine and maintenance work on this equipment was carried out in full and within the required timeframe. According to the conclusion of the interdepartmental commission, the manufacturer of the bushing, the Isolator plant of the USSR Ministry of Electrical Industry (Moscow), is to blame for the accident.
- Fire and damage to control cables on the Vinnitsa and Khmelnytsky NPP power lines due to the release of burning oil from the damaged reactor. The design organisation, the Kharkov branch of the Hydroproject Institute, was found to be responsible for the fire, failing to promptly adjust the cable route layout near oil-filled equipment in accordance with the requirements of the 1984 Electrical Equipment Installation Rules;
- Incorrect connection of the time relay (2RV), resulting in a failure of the emergency control system to reduce reactor power after the shutdown of two lines of the 750-volt power line. The fault is attributed entirely to the personnel of the Chernobyl Nuclear Power Plant's relay protection service and the Kharkov branch of Hydroproject, which failed to provide a backup emergency control system.

The electricians (Akulinich and Malykhin) who reconfigured the time relays were included in our investigation. Based on the investigation into the causes of the accident, measures are being implemented to strengthen operational control of the situation in the electrical shop.

The equipment at Unit 3 operated reliably throughout the entire period. However, the unit has experienced systematic failures of the inverter converters (ICs) in the power supply system. Twenty-seven failures were recorded in the first half of this year.

According to several operational sources and plant specialists, the reasons for the power supply failure include low reliability of the component base and interference immunity, and violation of the operating temperature regulation.

Management has arranged for representatives from the manufacturers to be summoned to the Chernobyl Nuclear Power Plant for joint troubleshooting. On July 30th of this year, the unit was shut down according to schedule, and its scheduled maintenance began.

The main monitored parameters of the Shelter facility are stable:

- neutron flux density of 13.1 neutrons/cm²/sec;
- gamma background level above the collapse surface – 25,650,000 µSv/hr;
- temperature in the steam distribution corridor – 43°C.

As of the end of the month, a total of 25 boreholes have been drilled in the collapse.

Studies of the apparatus shaft located above the lower base of the reactor (OR diagram) of the stack remnants suggest that a regular graphite-fuel structure is absent, which rules out the possibility of a self-sustaining chain reaction (SCR). However, further research is necessary to draw definitive conclusions.

When discussing ways to reduce the negative impact of a reactor collapse, some experts believe the preferred option is to fill the reactor shaft with self-hardening liquids. Ten to fifteen

years after the necessary equipment is built, the cores of both reactors will be buried in preparation for the decommissioning of Unit 1.

Work continues to decontaminate the turbine hall in the area of turbogenerator No. 7, where gamma radiation levels reach 2,000,000 $\mu\text{Sv/hr}$. After decontamination, transverse walls are planned to be erected along axes 41 and 40 to strengthen the north-facing structures, which were significantly deformed by the explosion. Construction of perimeter walls and a roof over this portion of the turbine hall, the so-called "Shelter-2," is then planned.

The inspection and certification of the rooms in Unit 4 is ongoing, with technical solutions being developed to reinforce the most severely damaged areas.

According to operational sources among qualified specialists, in the event of a maximum possible collapse, the resulting dust cloud will contaminate the surrounding area within a radius of 1 to 3–4 km (downwind).

There were no significant changes in the radiation situation during July.

In 51% of populated areas within the 30-kilometer zone, the content of radioactive aerosols in the air decreased by approximately half, in 12% of areas a slight increase was recorded, and in 37% no changes were detected. In the city of Chernobyl, aerosol concentrations increased sixfold, and in the village of Zeleny Mys, by more than an order of magnitude. However, no exceedances of permissible aerosol concentration levels were detected, with the exception of some locations within the Chernobyl Nuclear Power Plant industrial zone (a pond, ORU-750, and an industrial base), as well as at the Podlesny and Burakovka disposal sites, and on the Pripjat-NPP and Pripjat-Chernobyl highways. According to experts, the main source of contamination is the cleaning of the turbine hall, as well as dust rising from the area.

The average activity of the water in the cooling pond is 61 Bq/L, compared to the permissible level of 37 Bq/L. Radionuclide concentrations in some areas of the pond exceed the permissible level by 20 times.

Experts note the inadequate technical equipment of the radiation safety shop (RSS). This primarily includes the lack of direct communication between the RSS and the central and block control rooms, central halls, and video monitors for monitoring the situation in the most critical areas. The plant administration has been informed of this.

On July 17, a group of KGB specialists conducted radiation monitoring measurements in the city of Slavutych. The data obtained coincided with the information provided by the Combine Production Association.

Maximum gamma contamination levels were recorded in the area adjacent to the Vilnius Quarter:

From 0.7 to 1.0 $\mu\text{Sv/hr}$, and beta radiation levels at the Kalinka kindergarten ranged from 100 to 650 beta-particles/ cm^2/min . Isotopes of cesium-134, cesium-137, cerium-144, and ruthenium-106 were also detected.

Decontamination is being carried out throughout the city under the guise of landscaping work by a military construction team.

A number of experts believe that radiation issues in Slavutych should be transferred to the Chernobyl Nuclear Power Plant's radiation safety department, which will improve the morale of residents in Slavutych regarding the safety of their stay.

As of July 31, 399 families of plant employees, including 61 operational personnel, were registered in Slavutych. The total population is 2,003 people, including 704 children.

No significant positive changes in the morale and psychological situation among plant employees have been observed. Operational personnel on shifts 4 and 5 held meetings at which they decided to maintain the 12-hour work schedule even after the transition to a shiftless work schedule. The following arguments are put forward: reduced time spent in the zone and more time for active recreation.

References are made to a publication in the journal "Atomic Energy" No. 5 for 1988, which reported that the staff of the River Bend Nuclear Power Plant (USA) had switched to a 12-hour work schedule. They propose re-election of the plant's director if their demands are not met.

The publications "Dissenters Wanted" (Literaturnaya Gazeta, July 20), "Honest Words Won't Explode" (Moskovskiy Novosti, July 172), and the broadcast of the television film "Chernobyl - Two Colours of Time" sparked active discussion within the staff.

The main points made are as follows:

1. This is "inverse glasnost [[openness](#)]." A dialogue among competent specialists is needed.
2. The proper conclusions have not been drawn from the Chernobyl accident:
 - the fundamental cause of the accident has not been established — whether it was the actions of the personnel or a design error;
 - the behaviour of the personnel has not been analysed or studied—whether the casualties were justified or not;
 - major accidents cannot be ruled out, but a model for personnel actions during one has not yet been developed to prevent damage and casualties due to panic or "heroism";
 - there is no clear policy on what to do with the personnel who allowed the accident to occur.
3. The PO "Combinat" is a bloated, obsolete superstructure. It performs its functions of overseeing the expenditure of funds for the liquidation of the consequences of the accident (LPA), but if the association is liquidated, funding for all LPA work will be cut.
4. The USSR Ministry of Health is clearly concealing the consequences of radiation exposure to both small and large doses. This is contrary to glasnost and leads to disregard for NRB standards, which could impact the health of current and future generations.
5. The USSR Ministry of Atomic Energy should devote more attention to resolving the problems of PO "Spetsatom."

Given the evolving situation among personnel, we are taking measures to strengthen monitoring of its development.

In July, 18 foreigners visited the 30-kilometer zone of the Chernobyl Nuclear Power Plant, including 15 members of a delegation from the European Forest Protection Federation, two members of the executive committee of the United Engineering Workers' Union of Great

Britain, and the West German artist H. Zivik, one of the authors of the Soviet-West German publication "Europe on the Threshold of the Third Millennium."

In conversations with representatives of the plant and the Combine, the federation members inquired about the radiation situation in the zone, the number of casualties, the impact of radiation on human health, and our efforts to develop alternative energy sources. They demanded precise answers and digital data to their questions.

Zivik Kh. took photographs along the route, noting vehicles, abandoned areas, buildings, and shops in the city of Pripyat. However, he demonstrated complete ignorance of the scale of the accident and the radiation situation in the zone.

Attempts to obtain soil samples outside the zone were recorded by a student from Germany, W. Gurn. He explained his actions by saying that he was fulfilling a request from his friends.

The KGB department for the Chernobyl Nuclear Power Plant uses 125 agents, 3 residents, and 137 trusted individuals to carry out counterintelligence tasks.
We continue to carry out planned activities.

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Colonel P.K. Dolot