

Information on ensuring the safety of production equipment and technological processes at the Chernobyl NPP

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Secret

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

In April of this year, the KGB Directorate of the Ukrainian SSR for the city of Kiev and Kiev Region continued to provide security support to the Chernobyl Nuclear Power Plant, enterprises, and organisations located in the zone, and those participating in the clean-up efforts.

Analysis of materials obtained through existing resources indicates that the operational situation has not changed significantly over the past period.

In April, four foreign delegations visited the nuclear power plant and the city of Slavutych: participants in a World Meteorological Organization; an employee of the American television networks ABC and National Geographic magazine; and a group of French journalists, a total of 46 people.

Because the foreigners' visit coincided with the anniversary of the Chernobyl accident, additional measures were taken to prevent them from gathering biased information during their interactions with plant employees and residents of Kiev and Slavutych.

Foreign correspondents were primarily interested in: the reasons that prompted the NPP workers to relocate to Slavutych, possible "pressure" on them from officials and family members; health concerns; the social and age composition of the new residents; the state of discipline within the plant's workforce, whether there were instances of drunkenness or other negative behaviour; the reasons for the failure to implement certain measures to improve the reliability of RBMK reactors; and the results of research in the radiological laboratory. In conversations among themselves, the foreigners expressed dissatisfaction with the material obtained, which did not "meet their expectations."

An attempt by French correspondent Anna-Vari to remove a soil sample from the area was detected and prevented.

In connection with the anniversary of the Chernobyl accident, measures were taken in conjunction with party organs, the plant administration, and the Combine Production Association, as well as through available security services, to ensure a normal political and moral environment among the staff at the evacuees' residences. As a result, no negative behaviour by any of the evacuated NPP personnel has occurred.

The major overhaul (MO) of Unit 1 continued. However, due to the fact that the MO preparation timeframe was reduced by 23 days due to the reactor emergency shutdown, a number of organisational and technical problems arose at the initial stage of the work. In particular, there was a shortage of qualified welders, who were supposed to arrive from other

plants. The Du-800 valves removed from Stage 3 for installation at Unit 1 were not prepared for installation.

In response, the NPP's management decided to use its own specialists to replace six of the eight Du-800 units. According to competent personnel, this decision will not impact the operational safety of the main equipment, but will require additional costs, including dose-related expenses, for personnel providing maintenance of the main circulation pumps.

The primary focus was on finding the leaky channel, which was the cause of the emergency shutdown of the unit on March 10 of this year. Due to the imperfections of the existing methodology, it was only discovered on April 30. Due to the protracted search for the leaking channel, repair work on the spent fuel pool (IBV-1) has been delayed.

According to information received, management is taking measures to expedite the pool's clean-up and repair of the leak. However, the work will not be completed by the unit's scheduled start-up on May 26. Therefore, it has been decided to continue repairs to IBV-1 while the reactor is operating, which will require additional radiation safety measures.

No emergency shutdowns or operational violations were detected at Unit 2 during the previous period.

Unit 3 operated fairly reliably. However, on April 12, due to a siphon failure on the KND-51–54 condensers and a drop in vacuum on turbogenerator No. 5, thermal power was reduced by 150 MW.

After additional pumps were activated, the vacuum was restored and the unit was restored to normal operation. The under-generation amounted to 89,000 kWh.

The investigation determined that the siphon failure was caused by a rupture of the trash racks at Shore Pumping Stations Nos. 4 and 5 (SPS Nos. 4 and 5), which resulted in deterioration of heat transfer in the condensers. Management personnel at Turbine Shop No. 2 were found responsible. To carry out necessary preventive maintenance at SPS and clean the condensers, the fifth and sixth turbines were shut down sequentially on April 23 and 25.

On April 26, during a chemical analysis of the nitrogen-helium mixture in the reactor space (RS), oxygen levels were detected: 1.1% at the RS inlet and 0.5% at the outlet, compared to a standard of up to 0.01%. To reduce graphite oxidation by lowering the masonry temperature, a decision was made to reduce the unit's capacity from 3,200 to 2,700 MW thermal. After switching to the backup compressor of the nitrogen-oxygen station and connecting an additional gas purification unit, the oxygen content began to decrease.

Experts believe the likely causes of the incident are a malfunction in the gas purification unit's level regulator and the presence of lead on the second-stage cooler coil. Troubleshooting is ongoing.

On April 15 at 6:31 PM, a fire broke out in the circulation pump (CN-6) at the coastal pumping station (BNS).

A subsequent investigation established that the incident resulted from the erroneous actions of the BNS-4-5 duty engineer, N.P. Zagrudnitskaya. At 6:27 PM, during a scheduled shutdown of the pump, the siphon breakaway valve failed to operate (permitted by regulations), causing

the pump to rotate in the opposite direction under water pressure in the discharge pipeline. Instead of activating the siphon breakaway valve, N.P. Zagrudnitskaya started the electric motor, which caused the stator windings to overheat and catch fire. An operational investigation revealed no negative intent in the actions of N.P. Zagrudnitskaya, and she was given an administrative penalty.

A review has been completed of information regarding errors made during the processing of the results of physical experiments at Unit 3 in December 1987. These errors involved overestimating the effectiveness of the control and protection systems (CPS) in the first seconds of the activation of Emergency Protection System 5 (EPS-5), and an incorrect approach to analysing the effects of dehydration in the CPS cooling circuit and the multiple forced circulation circuit (MFCC).

The obtained materials were confirmed through the capabilities of the USSR UKGB Directorate for the Gorky and Kaluga Regions. As a result, the GAEN sent a corresponding order to the NPP administration, requiring them to provide a re-submission of the unit's operational safety justification by May 15.

During the investigation of the situation at the silicon doping site, data was obtained regarding the possible use of existing technology for the uncontrolled insertion of foreign objects into the reactor.

Silicon arrives from suppliers to the USSR Ministry of Non-Ferrous Metallurgy by regular mail in crates containing 50-70 crystals with a diameter of 44 mm. Before loading the raw material into the cassette for subsequent alloying in the reactor, it is inspected only visually, without the use of any technical means. This does not, in principle, rule out the possibility of crystal substitution. In this regard, we, including through the plant administration, are taking measures to strengthen operational and official oversight of materials placed in the reactor.

The Kurchatov Institute of Nuclear Energy's integrated expedition, with the participation of station specialists, continued to implement measures to ensure reliable monitoring of the Shelter.

The physical parameters of the collapse remained unchanged throughout April and were as follows:

- Temperature in the steam distribution corridor: 34.3°C;
- Neutron flux density: 26.3 neutrons/cm²/min;
- Gamma radiation level above the surface: 28,270,000 μSv/hr.

A draft "Work Program for Removing Nuclear Fuel from Unit 4 of the Chernobyl Nuclear Power Plant" has been prepared for submission to the Government Commission. It calls for examining the condition and distribution of the fuel by 1990, and then clearing the site of radioactive residues between 1991 and 1996, placing them in permanent storage areas. Simultaneously, it is planned to complete the decontamination of the building structures and improve the plant's grounds.

Drilling of boreholes to access the sub-reactor space continued. As of the end of April, seven boreholes had been drilled and two were being drilled.

To reduce the fire hazard, the clearing of unused cable lines from Unit 4 has been completed.

Measures to strengthen the station's security regime were taken according to plan. Based on the results of the experiment using a simulated intruder and an analysis of the situation at identified potential intrusion points, a meeting was held with the command of military unit 3031 of the Internal Troops Directorate of the Ministry of Internal Affairs of the Ukrainian SSR and the Moldavian SSR, the commandant's office, and the station's management. Additional measures to ensure redundant monitoring of the situation by guards and through technical capabilities have been planned and are being implemented.

Measures are planned for the second half of this year to strengthen engineering and technical security measures and reconstruct the control and tracking strip.

Due to the fault of the PO Combine administration, serious violations have occurred in the security arrangements at radioactive waste disposal sites (RWDS). The Podlesny RWDS, with a gamma level of 50,000 to 2,500,000 $\mu\text{Sv/hr}$, and the Burakovka RWDS, with a gamma level of up to 50,000 $\mu\text{Sv/hr}$, are effectively unguarded at night. Complete closure of these RWDS is planned for the second half of this year.

During the course of the security service's operations, a number of violations in fire safety regulations in the cities of Pripyat and Slavutych were uncovered.

In particular, fire protection in Pripyat is entrusted to SVPCh-16, stationed in Chernobyl. Travel time is between 30 and 40 minutes. However, the decision of OVPO-3 command to transfer the unit to Pripyat is not being implemented, as the relevant services of the PO "Combine" have not yet completed repairs or a dosimetric survey of the former VRF building in Pripyat.

A significant amount of various property from social development funds is stored in the warehouses of the Industrial Association "Combine" in Slavutych. However, due to the lack of the required number of hydrants (30 instead of 57) and alarm systems, the state fire supervision commission has not accepted the warehouse facilities for operation. The management of the association has been informed of this.

The Chernobyl Nuclear Power Plant Administration is implementing measures to transition the plant to a shiftless operation. As of April 30, 290 orders have been issued, 50 families have been accommodated, and 1,991 applications have been accepted from 2,285 employees who have agreed to relocate to Slavutych.

At the same time, preparations are underway to fill the vacancies that will arise with the commencement of the employment contract termination process. 366 applications have been received from 500 specialists slated for transfer from other nuclear power plants, 45 of which were from operational personnel.

No negative consequences have been identified in connection with the measures being taken, however, many plant employees are expressing dissatisfaction that those dismissed may include long-time employees at the plant, those directly affected by the accident, and those who actively participated in the clean-up efforts.

The team has split into those who are "going" and those who refuse to relocate, which is negatively impacting morale.

Due to the potential difficulties in recruiting highly qualified personnel, the administration is considering various options for organising temporary work for valuable specialists without relocating them to Slavutych.

According to available information, water intake and treatment facilities in Slavutych and the villages of Yakor and Lesnoy have not been accepted by the state commission, and therefore the quality of drinking water does not meet sanitary requirements.

Furthermore, due to the insufficient capacity of the treatment facilities in the village of Yakor, incoming sewage discharges are not effectively treated, leading to the contamination of the surrounding area.

Local party and government bodies have been informed of these facts.

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