

On the situation at the Chernobyl Nuclear Power Plant and in the 30-km zone in December 1987

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Confidential

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During December 1987, the operational situation at the Chernobyl Nuclear Power Plant and in the organisations involved in the liquidation of the consequences of the accident did not change significantly and was primarily determined by the unstable operation of Unit 1 of the Chernobyl Nuclear Power Plant, the launch of Unit 3, the completion of the new city of Slavutych, and preparations for the reorganisation of some facilities within the 30-km zone.

During counterintelligence work on members of three foreign delegations (nine individuals) from the United States, Great Britain, and Sweden who visited the Chernobyl Nuclear Power Plant, the cities of Chernobyl, Pripyat, and the Zeleny Mys camp during the past period, additional information was obtained regarding the enemy's intelligence agencies' intentions regarding the situation in the accident zone. For example, representatives of the American television company PBS (Chicago) expressed increased interest in technology and new biochemical methods for decontaminating contaminated areas.

British radiologist and author Mould persistently inquired about the use of polymers in decontamination, including that at Unit 3. His connections to the head of the protocol department of the British Central Power Authority, E.D. Collins, who was reasonably suspected of belonging to the enemy's intelligence services, were revealed.

Harvard University Professor Wilson's plan to collect needle samples from pine trees growing within a 30-kilometer zone was discovered and prevented.

During the trip, he constantly used two dosimetric devices measuring beta and gamma radiation. Wilson, in a conversation with his trusted agent, D.A.I., let it slip that he had reviewed a document on radiation levels on specific streets in Pripyat, possibly obtained through intelligence.

Agent "Vladimir" learned from Wilson that in Washington State (USA), there had previously been intense radioactive contamination of large areas, the source of which could have been an explosion with a yield of approximately 500 megatons.

[an interesting note – if there would've been such explosion, there would be no Washington State, so this is likely to be incorrect].

Further discussion on this topic was stopped by Chicago Tribune correspondent Gallagher, who was present at the conversation. Wilson also told the agent that he maintained friendly relations with Academician Sakharov and intended to meet him and bring gifts from his father to his children living in the United States.

Through our intelligence sources, foreigners were provided with operationally beneficial information about the situation in the zone, and two positive interviews were obtained.

The KGB Department for the Chernobyl Nuclear Power Plant analysed the information provided to foreigners during their entire visits to the 30-km zone regarding the liquidation of the consequences of the accident, the content of which was agreed upon with the PDK of the PO "Combinat" from the point of view of its secrecy, and prepared a summary document for information support of KGB agents traveling abroad.

Information disseminated among Chernobyl Nuclear Power Plant personnel and other organisations about the contamination of Slavutych and its environs with cesium-137 could become the property of enemy intelligence services. Therefore, we believe it would be advisable to inform authorities about possible actions by anti-Soviet foreign organisations in order to prepare counter-propaganda measures on this issue in advance.

Situation at Unit 1

Leaks in the spent fuel pool (SFP) continue to occur, with volumes of 360 to 4002 m³. In preparation for repairs scheduled for April 1988, spent fuel assemblies (FAs) are currently being transported from the SFP to the spent nuclear fuel storage facility (SNF).

Until December 13, 1987, monitoring system instruments recorded increased humidity in the reactor space, indicating a depressurisation of one or more fuel channels (FC).

Increased humidity in the graphite stack leads to combustion and the formation of unacceptable concentrations of CO and CO₂. By 5:39 PM on December 13, leaks from the process channels had reached the permissible level (1 L/min), which triggered an emergency shutdown of the unit.

After the appropriate reactor cooldown, a decision was made to replace TK 52-63 and TK 42-53.

A rapid review of the decision's validity revealed that existing methods for determining current TKs do not guarantee accurate determination. According to some sources, the guarantee does not exceed 10%, which was, to a certain extent, confirmed by subsequent events.

On December 21st of this year, the replacement of these fuel channels was completed, but data obtained as of December 25th, 1987, indicate that leaks into the reactor space (RS) remain at the permissible limit, which will lead to a repeat emergency shutdown of the unit in the near future.

As operational sources note, existing methods only allow for the location of damaged fuel channels, and in the event of an emergency shutdown of the unit, to obtain the highest possible guarantees, it becomes advisable to replace approximately 10 "suspected" fuel channels, which, in turn, reduces the unit's economic performance.

Considering that excessive unit shutdowns with increased thermal stress on process equipment have an extremely negative impact on its strength characteristics, we believe it is necessary to consider the feasibility of investigating this issue through operational sources from specialists at VNIIAES, NIKIET, and the Kurchatov Institute of Atomic Energy (Moscow), with a possible subsequent proposal for the development of a more advanced diagnostic system.

In addition to the aforementioned deviations from normal unit operation, the following deficiencies were noted in December.

On December 11, 1987, due to an increase in the TG-2 housing temperature, the latter was shut down due to an emergency call. A prompt investigation revealed that the end caps were mixed up during generator assembly, which disrupted the cooling hydrogen flow within the housing.

An analysis of available materials from investigations into the causes of previous turbogenerator failures allowed us to identify a group of maintenance mechanics, among whom a person with hostile intent may be acting.

A study of the assigned contingent and measures to search for possible hostile elements are underway.

During the unit's shutdown, repair work was also carried out on TG-1, where overheating of bearing No. 8 had been observed during operation. As a result of the work, the identified bearing misalignment due to vibration was corrected. However, after TG-1 restarted, the heating of this bearing began to progress, leading to a second shutdown of the turbogenerator. The cause was improper bearing assembly.

During the operational and internal investigation, the perpetrators were identified. The investigation revealed no signs of hostile intent. All were characterised positively in their ideological, political, and business activities. Administrative penalties were imposed on those responsible for the incident.

Situation at Unit 3.

On December 1 and 7, 1987, there were incidents of emergency protection system (EPS-5) activation at the Unit 3 reactor. On the first occasion, the reactor was at the minimum control level (MCL) with a thermal power of 60 MW.

In the second case, before the AZ-5 trip, the unit was supplying 200 MW to the national power grid, with a thermal capacity of 800 MW.

Both unit emergency shutdowns occurred while shift supervisor (NSB-3) V.G. Slonimsky, seconded from the Leningrad Nuclear Power Plant, was on duty.

Operational and internal investigations revealed that the main causes of the AZ-5 trip were erroneous orders by NSB-3, poor oversight of the operations personnel, and deficiencies in the automatic control systems (in the first case).

Due to the short duration of Slonimsky's stay at the Chernobyl Nuclear Power Plant, a thorough operational study of him was difficult. Given the lack of obvious signs of hostile activity, the Sosnovoborsk Regional Directorate of the USSR State Security Committee for the Leningrad Region was notified to organise operational surveillance of him.

Since the unit had not been commissioned and was in commissioning mode, both shutdowns were recorded as scheduled preventive maintenance (SPM).

On December 10, 1987, the fifth turbogenerator (TG-5) was connected to the grid, and on December 23, 2016, TG-6 was launched and synchronized with the national power grid.

On December 25, 1987, the total electrical power of the power unit was 700 MW, with 200 MW and 500 MW respectively on turbogenerators 5 and 6, with a reactor thermal power of 2250 MW.

According to the assessment of agent "Arykov," a highly qualified specialist in the matter discussed below, a potentially hazardous radiation situation occurred at the unit from December 19 to 20, 1987, which could have developed if two or even one failure, known as a "total power outage," overlapped.

At 2:00 AM on December 19, 1987, a signal was received from Arykov regarding a failure due to water flooding of the electric motor windings and a failure of the seals in the butt joints of all three cooling pumps of the non-emergency half of the reactor (NONP), which are in constant readiness during normal operation of the unit.

After cross-checking the agent's information through other sources, the following was established during the operational investigation.

During the preparation and execution of work by the station's chemical plant to pump water from the clean condensate tank (CCT), which was carried out according to a temporary plan in accordance with the technical solution, due to poor oversight of the implementation of measures by the Deputy Head of the Chemical Plant for Operations, V.N. Dektorenko, the execution of preparatory work by Shift Supervisor, O.Ya. Vasilenko, and the low competence of Senior Operator, A.N. Grazhdankin, a temporary pipeline was mistakenly installed between the manifold of the NONPs and the shut-off valve, which caused process water to enter the electric motor casing when the valve was closed.

Those responsible for disabling the nuclear reactors have been characterised positively by operational sources in terms of ideological, political, and moral character; no hostile intent has been detected in their actions.

Following an internal investigation, administrative penalties have been imposed on Dektorenko, Vasilenko, and Grazhdankin. V.D. Chebrov, head of the State Nuclear Safety Inspectorate at the Chernobyl Nuclear Power Plant, has been informed of the inadequate oversight of work on the reactor safety systems by the responsible GAEN inspector.

Situation at Unit 4 (Shelter Facility):

The monitored parameters of the 4th reactor's collapse as of December 27, 1987, are characterized by the following values:

- Temperature — 34°C;
- Gamma radiation — 9,600,000 $\mu\text{Sv/hr}$;
- Neutron flux — 22 neutrons/cm²/sec.

Experts currently believe that the bulk of the remaining fuel is dispersed in the steam distribution corridor (SDC) and partially spilled into the lower rooms during the accident. Chemically, it consists of silicon (~95%), fuel (~2-3%), and various impurities. The fuel is in a stable subcritical state. A series of tests are being conducted to determine the degree of subcriticality, including:

- drilling wells using US-605 units to penetrate the nuclear reactor;
- installation of a system of identical sensors in the wells to record physical and chemical processes.

The current sensor system does not meet the requirements for reliability and measurement accuracy due to the fact that they were configured by different organisations and are poorly shielded from external fields.

In January 1988, it is planned to install 100 sensors developed by the Kurchatov Institute of Atomic Energy, whose design partially addresses the deficiencies identified in the existing sensors.

The existing "Shater" IDC system does not allow for prompt monitoring of key camber parameters. Data from the IDC is transmitted within 1.5 hours. Currently, specialists at the Academy of Sciences of the Ukrainian SSR are fine-tuning a program that will allow for significantly faster data collection within 3-4 seconds, with the display of light signals when any controlled parameters defined by the settings are exceeded. The system will also allow for the acquisition of data recorded by each individual sensor.

In December, minor fluctuations in the recorded parameters were observed, which are explained by changes in the surrounding (external) environment (a decrease in outside air temperature, vibration from the operation of Unit 3, etc.). However, all changes are within the average values of the instrument readings. All recorded data show a downward trend.

During the reporting month, a signal regarding possible damage to individual structural elements of Unit 4 located in the "Shelter" was investigated.

The investigation involved the use of Agent "Kolotov," a candidate for recruitment K.N.F., official resources, and, in particular, specialists from VNIPIET.

As a result of the signal inspection, it was established that in room 402/3 of the main circulation pumps (MCP), located at the 12.9 m mark, there is a deviation from the vertical axis towards the deaerator rack of the supporting internal wall by 30–60 cm. As a result, the floor slabs at the +31 m mark have partially disengaged from the supporting structure, which, according to sources, over time could lead to their collapse even as a result of minor dynamic loads.

The Director of the Chernobyl Nuclear Power Plant, Comrade M.P. Umanets, and the Head of the Kurchatov Institute of Nuclear Energy's Integrated Expedition, Comrade I.N. Kambulov, have been informed of this incident. Access to the specified room for maintenance personnel has been suspended pending a commission's investigation of the evolving situation. The commission's work is expected to begin on January 5, 1988. According to competent specialists, the collapse of the specified floors will not have serious consequences from a nuclear safety standpoint, as the remaining nuclear fuel is located at a significant distance from room 402/3.

We are monitoring the situation.

The party organiser of the CPSU Central Committee, Comrade E.A. Borodavko, and the First Secretary of the Slavutych City Committee of the Communist Party of Ukraine, Comrade V.G. Lukyanenko, have also been informed of this incident.

At the same time, as noted at a meeting of the task force of the Politburo of the Central Committee of the Communist Party of Ukraine in November of this year, the guaranteed operational life of the metal structures exposed to radiation and corrosion has not yet been determined, which does not rule out the possibility of their destruction. A program for the removal of radioactive materials from the facility area has not been developed, and there is

no system for suppressing a spontaneous chain reaction, the possibility of which has not yet been completely ruled out.

By decision of the Committee No. 473 of November 21, 1987, it was determined that the USSR Ministry of Medium Machine Building would carry out conservation work on the turbine hall of Power Unit No. 4 from April to September 1988, including the construction of a new roof covering for a portion of the turbine hall at the crane runway level. By December 15, the same ministry would conduct a detailed study of the power unit's conservation, paying particular attention to the architectural design of the facility and ensuring safe work practices.

Meanwhile, the Ministry of Installation and Special Construction of the Ukrainian SSR was manufacturing metal structures for a new turbine hall roof in the first quarter of 1988. The USSR Ministry of Defence was carrying out decontamination work during the mothballing process. The USSR Ministry of Atomic Energy was conducting dust suppression work during the mothballing process and performing certain types of work using robotic equipment.

The Chernobyl Nuclear Power Plant administration prepared for the organised resettlement of approximately 1,500 operating personnel in Slavutich from February to June 1988, maintaining the rotational work schedule.

However, the refusal of the majority of the plant's personnel to relocate to the new city for various reasons, and the lack of decisions on a number of important settlement issues (possible reservation of housing at their permanent place of residence, the procedure and timing of dismissals, the conclusion of fixed-term employment contracts, etc.) creates a difficult situation within the team and complicates the administration's planning for staffing the NPP and its transition to a shift-free work schedule.

In December 1987, a group of plant operational personnel sent a collective letter to the authorities requesting clarification of conflicting reports regarding radioactive contamination in Slavutych, guarantees for the safe residence of the local population, and a review of the decision regarding official (departmental) housing in the new city. It was proposed that the resettlement of Slavutych begin with the Chernobyl Nuclear Power Plant administration and party and government officials, in order to eliminate speculation about the intention of a "close circle" of leaders to obtain permanent registration and reserve housing in Kiev.

It was suggested to increase wages for employees by reducing the number of service personnel. The same letter also expresses concerns about the difficulty of finding employment in Slavutych for family members, as well as dissatisfaction with the lack of reliable transportation to the station.

The electrical shop's maintenance personnel, having previously briefed the Central Committee Party Organiser, Comrade E.A. Borodavko, also sent a collective letter to the authorities requesting that the workers at Switchgear Units 330-750 remain in the category of particularly hazardous working conditions and that their wages and other benefits not be equal to those of personnel employed within the entire 30-km zone. The management of the Chernobyl Nuclear Power Plant and the Production Association "Combinat" have been informed of the substance of the process.

In accordance with the decision of the Government Commission, mothballing work on Unit 5 of the Chernobyl Nuclear Power Plant will begin in 1988.

The project includes decontamination of the area, premises, and equipment, restoration of the as-built documentation, creation of a construction base for the third phase, security arrangements, project implementation taking into account the integrated measures to improve NPP safety, and other measures. According to sources among competent specialists, the mothballing of Unit 5 will gradually transition to continued construction, with commissioning expected around 1991–1992.

According to A.Yu.B., significant cesium-137 contamination remains in the immediate vicinity of the Chernobyl Nuclear Power Plant, encompassing a 30-kilometer zone and adjacent areas of the Kiev and Zhytomyr oblasts. A potential source of secondary radionuclide contamination is the five-kilometre zone around the plant, from where wind transport, especially during storms, can carry radioactivity over long distances, leading to localised fallout and exceeding maximum permissible doses.

The high activity level of the bottom sediments in the Chernobyl Nuclear Power Plant cooling pond (370,000,000,000,000 - 3,700,000,000,000,000 Bq [370-3,700 TBq]) and some other contaminated water bodies necessitates the development of decontamination and anti-seepage measures in the near future.

The data of agent "Petrov" and trusted agent B.A.E. indicate that the USSR Ministry of Water Resources, the USSR Ministry of Atomic Energy, and the USSR Ministry of Defence have unjustifiably delayed the implementation of Government Commission Decision No. 16 of August 15, 1987, on the reconstruction of the existing floodwater filtration system.

The six filter dams built in 1986 (five in the Byelorussian SSR and one in the Ukrainian SSR) were designed to withstand only annual floods, and some of them were operating at their capacity during the average flood of 1987. Given this, there is a real risk of their failure in the spring of 1988, resulting in the discharge of sludge contaminated with radioactive substances into the Kiev Reservoir, many times exceeding permissible levels. A team from the State Hydrological Institute in Leningrad is forecasting the upcoming flood.

According to R.A.A.'s authorised representative, the Ministry of Internal Affairs of the Ukrainian SSR has not yet implemented Government Commission Decision No. 60 of April 20, 1987, regarding the installation of a security alarm system and the establishment of a guard post at the Podlessny radioactive waste disposal site, which contains over 3,000 cubic meters of radioactive substances with a gamma level of up to 2,500,000 $\mu\text{Sv/hr}$. One of the modules of this disposal site, in violation of the design, has not been mothballed by the Chernobyl Nuclear Power Plant Construction Department (it is not covered with concrete).

This increases the facility's vulnerability to sabotage and, in the event of storm winds, could result in the transport of radioactivity over long distances.

Through agent "Petrov," information was received indicating that the scientific centre of the USSR Ministry of Defence had conducted a detailed survey of the village of Yasen in the Polesie District and confirmed the high level of contamination of the area, buildings, food, and the surrounding forest. The report on the study, which was shared with the leaders of the district's

Party and Soviet organs, proposed resettling the village's residents, burying its buildings, and fencing off the adjacent contaminated forest to prevent its use for economic purposes.

We previously reported on the decision to establish a robotics and emergency response operations department at the Kompleks special enterprise. While drawing up the divisional statement, a sharp conflict arose between the heads of the Combine (E.I. Ignatenko) and the newly formed enterprise (Yu.N. Samoylenko) over issues of functional responsibilities, personnel numbers, and funding for the planned work. Individuals from the management apparatuses of the two enterprises became involved in the conflict, and a mutual collection of incriminating evidence began, resulting in an unfavourable situation that negatively impacted the course of the accident clean-up.

Using the operational capabilities of leading specialists, the department took measures to normalise the situation, informed party organs, and managed to somewhat de-escalate the conflict.

The position of Mr. Samoylenko Yu.N., in our opinion, is preferable, since it provides for a significant reduction in the material costs of eliminating the consequences of the accident by reducing the number of personnel involved, which should effectively lead to the dissolution of the PO "Combine."

However, Mr. E.I. Ignatenko is seeking a review of the Government Commission's decision so that the bloated apparatus and all primary responsibilities for eliminating the consequences of the accident remain virtually unchanged at the Combine Production Association. According to the Government Commission's preliminary decision, the robotics production association's base site will be moved outside the 30-kilometer zone, and its functional tasks will be reduced.

Information was received from agent "Smirnov" and trusted agent B.K.I., based on which official statements were received and sent to the prosecutor's office regarding instances of abuse of office by the command of the 1st company of the military construction detachment of military unit 93631, which was issuing fake certificates of participation in the liquidation of the consequences of the accident to military personnel for a fee of 40 roubles, as well as regarding the illegal wearing of orders and medals by Pashchenko, a train conductor at the railway section of the PO "Combine" railway.

The Chernobyl Nuclear Power Plant administration used information from agent "Somov" regarding the possibility of unimpeded access by unauthorised persons from the plant's territory to the operating units through an emergency door in the turbine hall, designed for the evacuation of personnel in the event of a fire.

According to Major General N.G. Fedosov, Deputy Chief of the Internal Troops of the USSR Ministry of Internal Affairs for the Ukrainian and Moldavian SSRs, a Government Commission decision is awaiting approval from the authorities to instruct the internal troops to organise security and ensure access control within a 10-kilometer zone, the city of Prip'yat, the burial grounds, and the railway checkpoints, with mandatory personal searches of all station personnel arriving for shifts. Access control within the 30-kilometer zone and the maintenance of public order within it will be entrusted entirely to territorial police agencies.

Approximately 9,500 people are currently employed in the construction of Slavutych. As of December 22, 1987, the working commission had accepted approximately 70,000 square

meters of housing. By the end of 1987, 100,000 to 107,000 square meters of housing are expected to be completed on a turnkey basis, against a planned 137,000 square meters. Plans for the commissioning of social and cultural facilities are being disrupted.

With the city's population set to begin in February 1988, deficiencies and unresolved issues have been uncovered that could lead to negative consequences.

The lack of security at the city's boiler house and water treatment facilities increases their vulnerability to sabotage.

Fire safety requirements are not met at all construction sites, construction companies, and construction workers' residences. Low capacity in workers' cafeterias, inadequate food preparation, isolated supply disruptions in grocery stores with bread and meat products, a lack of semi-finished products, and interruptions in the supply of hot and cold water in the village of Lesnoy are causing worker discontent.

The lack of Finnish, Japanese, and West German equipment worth approximately 270,000 roubles for the city hospital could impact its commissioning timeline. Insufficient information regarding the procedure for providing housing to construction workers is giving rise to various speculations and misinformation, creating nervousness among the workforce. Adequate safety compliance monitoring is lacking at virtually all production sites.

Some of the sidings and on-site railway tracks built by the military construction team are in a state of disrepair, leading to derailments and damage to cars and locomotives. There are cases of unearned income among individual construction crew leaders from the Georgian, Armenian, and Azerbaijani republics.

The Slavutych City Committee of the Communist Party of Ukraine has been informed of the discovered deficiencies.

For counterintelligence support of the Chernobyl Nuclear Power Plant and its surrounding facilities, the KGB department for the Chernobyl Nuclear Power Plant uses 102 agents, 3 residents, and 124 authorised persons.

Head of the KGB Department of the Ukrainian SSR for the City of Kiev and Kiev Region for the Chernobyl Nuclear Power Plant
Colonel A.N. Mirgorodsky