Report on measures to normalise the radiation situation in the capital of the Ukrainian SSR in 1986

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Secret

Report on the work carried out in 1986 to normalize the radiation situation in Kiev

Following the Chernobyl nuclear power plant accident, a task force was established by decision of the city party committee to manage the clean-up of its consequences in the city.

To competently and promptly review and resolve various issues related to normalizing the radiation situation in the city, a number of working and expert groups of specialists were created:
– Kiev City Decontamination Expert Group (N.V. Lavrukhin);
– Working Group for Forecasting and Developing Measures to Improve the Radiation Situation in Kiev (V.N. Kocherga);
– Group for Organizing and Coordinating Work on Decontaminating City Roads, Sidewalks, Buildings, Structures, and Other City Facilities and Territories (E.A. Yasinsky);
– Expert Group on Nutrition Issues (B.R. Savchuk);
– Expert Group of Specialists for Organizing Specialized Laboratory Monitoring and Assessment of the Radiation Situation in Kiev (M.G. Shandala);
– Wastewater Decontamination Group (Commander A.P. Shutko);
– Expert Group of Medical Specialists (Commander G.N. Menzheres);
– Advisory Group on Radiation Situation Assessment in Kiev (Commander V.I. Shestakov).

To coordinate the actions of the City Council Executive Committee units, district Council Executive Committees, and city enterprises, institutions, and organizations to normalize the radiation situation, the Environmental Protection Department of the City Council Executive Committee was established by the Order of the Council of Ministers of the Ukrainian SSR dated June 5, 1986, and by the Resolution of the Kiev City Council Executive Committee No. 561 dated June 9, 1986.

At meetings of the task force, working groups, and expert groups, issues were discussed periodically (once or twice a week) or as needed, and decisions were made regarding the aftermath of the Chernobyl accident and the improvement of the radiation situation in the city. Sixty task force meetings were held.

By implementing a range of measures and the necessary activities, experts estimate that the radiation dose to the city's population was reduced by approximately 30% compared to what was expected. This significant effect was achieved thanks to the clear organization, prompt, and targeted efforts of party and government bodies, all departments of the executive committees of the city and district Councils of People's Deputies, enterprises and organizations, and all workers and the city's population.

During the reporting period, a large volume of research, design, construction, installation, and other work was completed, and significant material resources were utilized.

1. Assessment of the radiation situation in the city

Since the Chernobyl accident, a large number of organizations from various departments have been involved in monitoring the radiation situation in the city. The results of systematic observations by specialized services were used to promptly assess the radiation situation: 5 monitoring points under the city's Sanitary and Epidemiological Service, 121, and later, 60 monitoring points under the Civil Defence Service. The most extensive measurements were conducted by the Kirovgeology Industrial and Geophysical Organization (PGO) – pedestrian gamma surveys in the air and on the ground, and beta surveys on the ground across a network of 950 observation points:
– 13 cycles of monitoring were completed and sets of radiation maps for Kiev were compiled at a scale of 1:25,000;
– the radionuclide composition and total radioactivity of soils were determined at 30 points in the city; maps of soil contamination with caesium isotopes were constructed;
– measurements of radioactive contamination of biomass were conducted; the average activity of radionuclides in biomass was 159,100 Bq/kg;
– measurements of radioactive contamination of the banks of the Desna River and Kiev beaches were conducted;
- Residential buildings and industrial workshops, retail and catering establishments, schools and preschools, clinics and hospitals, as well as industrial equipment, including that removed from the 30-kilometer zone, were inspected;
- Control measurements were taken in 693 apartments of citizens resettled from the Chernobyl zone (5,010 measurements of property and personal belongings);
- Random monitoring of radioactive contamination of Christmas trees brought into the city from other regions was organised.

Between May 30 and December 20, 1986, the radiation situation in the city improved significantly and is characterised by the following data: the beta particle flux density on the soil decreased by a factor of 7.3, the gamma radiation exposure rate on the soil surface decreased by a factor of 5.3, and in the air by a factor of 9.3. A particularly sharp decrease in beta activity (at least a factor of 5) occurred after snowfall.

As of August 1986, the city's average total activity of radionuclides was approximately 740,000,000,000-1,295,000,000,000 Bq/km^2, [0.740-1,295 TBq/km^2] and that of caesium isotopes was 111,000,000,000 Bq/km^2 [111 GBq/km^2].

The dynamics of changes in the radiation situation in Kiev are shown in the graphs (see Appendices 1-7) prepared by the A.N. Marzeev Institute of General and Communal Hygiene.

The total cost of dosimetry work performed in Kiev by the Kirovgeologiya Production and Public Organization was 34,900 roubles.

The city's civil defence system has allocated more than 2,000 DP-5 (A, B, C) roentgenometers for mass dosimetric monitoring.

2. Clean Water Supply

To ensure the city's uninterrupted supply of high-quality drinking water, a significant amount of work has been carried out to protect water sources, water treatment plants, and other relevant structures:
– To prevent water contamination, all reservoirs at the city's water intake stations have been sealed, and special ventilation has been activated;
– Water quality control was carried out by a radiological department established at the Water Supply and Utilities Department, equipped with all necessary instruments;
– Water supply options were developed for the city from clean water reservoirs and artesian wells at 246 points, simultaneously filling 657 truck tanks and 290 points into hand containers;
– 93 artesian wells, built in 1986, were commissioned, with a total flow rate of 89,000 cubic meters per day;
- 17.96 km of water pipelines from the Desna River to the Dnieper Water Supply Station's water intake facilities were put into operation;
- 100 hectares of additional sludge beds were developed for storage and dewatering of sludge treatment facilities;
- 668 non-militarised personnel were maintained on constant alert for rescue and emergency recovery operations.
– To ensure the city's population and industry have access to drinking water that meets established standards during the spring flood of 1987, a set of measures has been developed that will be implemented depending on the evolving situation;
– An operating regime for the Dnieper Cascade reservoirs has been established during the spring flood of 1987, ensuring that permissible concentrations of radioactive substances in the Dnieper River do not exceed the permissible limits.

3. Organization of Trade and Food Supply

On April 30, an order was issued to the service to transfer the trade and catering system to a special operating mode.

3.1. Providing evacuated populations and special forces with clothing and food:
- issues related to providing supplies to personnel involved in the clean-up efforts and to the evacuated population were promptly resolved, with a total of 1,165,235 roubles in clothing and footwear provided;
- hot meals were provided to traffic police and fire department posts, emergency response teams, and construction workers building residential buildings for those evacuated from the Chernobyl zone, with a total of over 480,000 hot meals provided daily;
- To improve the readiness of mobile food stations, additional standard equipment and supplies worth approximately 150,000 roubles were purchased;
- Over 130,000 dry rations were prepared and distributed.

3.2. Food Containment Measures:
- Doors and window openings were sealed, and other work was carried out to seal production and storage areas. A total of approximately 30,000 roubles were spent on these purposes;
– Covering material (tarpaulin, polyethylene film, etc.) worth over 60,000 roubles was prepared.

3.3. Dosimetric Monitoring:
– Over a short period of time, over 150 radiation and chemical monitoring posts were deployed in the retail and catering industry, including over 30 mobile ones, performing dosimetric monitoring and equipped with over 200 DP-5 devices.

3.4. Organisation of Radiometric Monitoring
– Since April 30, 1986, specialists from the City Sanitary and Epidemiological Station's radiological department, together with other organisations, have established monitoring of radioactive substance content in food products, with enhanced monitoring of milk and dairy products;
– Subsequently, a reliable system for radiation monitoring of food quality was developed;
– On May 23, 1986, the task force of the City Party Committee Bureau decided to establish departmental radiological laboratories within the State Agro-Industrial Committee, the Ministry of Food Industry, the Ministry of Trade, and other departments;
– as of December 1, 1986, a total of 107 laboratories had been established, including 15 laboratories in the Main Trade Directorate (1 mobile), 16 laboratories in the Public Catering Directorate (1),
Kyivplodoovoshchprom Directorate — 14 (2), Ukroptmyasomoltorg Regional Offices — 5 (1), Ukroptbakalya — 3 (1), city market laboratories — 20 (1), etc.
– As of February 1, 1987, 93 laboratories had been certified; 6 of the 19 city market laboratories, 7 gardening association laboratories, and the Podolsk ORPK laboratory did not have sanitary passports.

During the reporting period:
— More than 150,000 tests were conducted within the Kyivplodoovoshchprom system, with approximately 300,000 roubles spent on laboratory equipment and other activities;
– Over 56,000 food product samples were tested in the Public Catering Department, with laboratory equipment and other costs amounting to approximately 100,000 roubles;
– Over 1,300,000 samples of animal and plant products sold at collective farm markets were tested in the market trade system from May to January, with approximately 8,200 samples found to contain elevated radionuclide levels.
– Expenses for laboratory equipment funded by the state budget amounted to approximately 54,000 roubles. Equipment worth 55,600 roubles was received free of charge from other organisations.

3.5. Protective and Decontamination Measures:
– Systematic decontamination measures were organized at all retail and catering establishments (wet cleaning of retail and warehouse premises three times daily, watering of adjacent areas, collection and removal of biomass, and other measures);
– Decontamination measures were systematically monitored by higher-level organizations, the sanitary and epidemiological service, the headquarters of the Civil Defence Department for Environmental Protection, and other organisations;
- Strict controls were established to prevent food contamination during storage, transportation, and sales, including the use of packaging materials and the prevention of packaging in open areas of facilities. More than 80 sanitary violation reports were issued for identified violations in May and June alone;

- Issues of late removal of food containers and trays were addressed;
– Great care was taken to ensure radiation safety for the population when organizing trade in the city's markets.
From May 24 to June 24, eight markets were closed due to the lack of facilities to test products for radioactive contamination. The markets were provided with side tables to prevent trading from the ground;
– The sale of dairy products, certain types of berries, and greens was temporarily prohibited.

3.6. Methodological Support:
– To provide organisational and methodological assistance to departmental radiology laboratories, specialists from the City Sanitary and Epidemiological Service, together with staff from the Institutes of Nuclear Research, Physics, General and Communal Hygiene, Advanced Medical Studies, and other institutions, developed and implemented temporary methodological guidelines for rapid methods of food analysis (6 methods);
– The developed method for determining the concentration of radioactive substances in milk and dairy products using the SRP-68-01 device allowed for a significant reduction in testing time, approximately 10-fold;
– A protective lead housing was designed, increasing the sensitivity of the method and the reliability of the testing results. By decision of the City Executive Committee, 50 such housings were manufactured for departmental laboratories;
– The "Sampling" section of the current method was refined for use in markets;
– To increase the sensitivity of the devices, the counters in the DP-100 devices in markets and other departmental laboratories are being replaced (SI-8B and SBT-10 devices are being installed).

3.7. Organisation of food product deliveries from other regions of the republic and characteristics of the main products:
– By decision of the Republican Commission for the Elimination of the Consequences of the Chernobyl Nuclear Power Plant Accident, grain and whey, milk, meat, and sausage products were delivered to the city from December 1986 to May 1987 from the prosperous regions of the republic (an average of 7,000 tons of meat, 2,000 tons of sausage products, and 6,000 tons of milk per month);
– 15,000 tons of potatoes and 23,000 tons of vegetables were procured from unscheduled suppliers in other regions;
– Gamma spectrometric studies of milk showed that up to 40–50% of the total activity of milk from farms in the Kiev region is determined by Cs137 (11.1–18.5 Bq/L), exceeding the pre-accident level (0.037-0.37 Bq/L) by 1–2 orders of magnitude;
– Similar studies of milk from farms in the Poltava, Vinnitsa, and Kirovograd regions showed that the Cs-137 content slightly (2–8 times) exceeds the background pre-accident level and is within the range of 1.48–2.96 Bq/L;
– Since August 1986, the quality of meat and meat products was maintained at stable levels of 37-185 Bq/kg, beef 111-185 Bq/kg, and poultry 111-148 Bq/kg, with the temporary standard requirement of 3,700 Bq/kg. The Cs-137 content in meat and meat products is 3.7-37 Bq/kg, which is two orders of magnitude higher than the pre-accident level.

4. Measures to prevent additional contamination of the city

4.1. Dosimetric monitoring and special treatment of vehicles were organised at the entrances to the city and at motor transport enterprises:
– 9,932,958 vehicles and other equipment were inspected at the entrances to Kiev;
– Approximately 15,000 dosimetric measurements of vehicle contamination and 1,600 studies to determine the total activity of sludge and water at treatment facilities were conducted at transport enterprises. Removal permits were issued, specifying the sludge volume, disposal location, and permit validity period.
– Special vehicle treatment stations were built at the entrances to Kiev, including eight summer PUSOs in the villages of Gorenichi, Gostomel, Bykovnya, the town of Obukhov, the village of Demidov, on Bogatyrska Street, Koshevoy Avenue, and at the entrance from Borispol. The cost of the summer PUSOs is 3,175,000 roubles.
– Two winter roadblocks in Gostomel and on Bogatyrska Street, with a total cost of 1,236,000 roubles;
– Two winter roadblocks are under construction in Gorenichi and Bykovnya, with a total cost of 1,198,000 roubles, of which 714,000 roubles have been spent;
– Two checkpoints are under construction on the Kiev-Dymer and Kiev-Ovruch roads, with a total cost of 247,000 roubles, of which 134,000 roubles have been spent;
– 38,275 units of machinery and equipment were processed at eight roadblocks from May 5, 1986 to December 31, 1986.
– 24 SZB-type devices have been installed at checkpoints entering Kiev and 30 in transport enterprises, providing automatic dosimetric monitoring of vehicles and other equipment.

4.2. Treatment technologies and special chemical compositions have been developed:
– a technology for cleaning wastewater from radioactive contamination, developed by the Kiev Polytechnic Institute and approved by the Academy of Sciences of the Ukrainian SSR, the Ministry of Health of the Ukrainian SSR, and the USSR Civil Defence Headquarters, is being used at stationary treatment facilities for motor transport and implemented during the decontamination of rolling stock of the Southwestern Railway.
– Tram and railway tracks were treated with new soil stabilisation and dust control compounds developed by the Institute of Physical, Chemical, and Carbon Chemistry of the Academy of Sciences of the Ukrainian SSR, the VNIIKhimproekt Institute, and the L.N. Marzeev Institute of General and Communal Hygiene.

5. Urban Transport

5.1. For the Kiev branch of the Southwestern Railway.
– 19 rolling stock inspection posts were established, with 92 passenger trains, 54 freight trains, and 76 locomotives inspected daily;
– Dual dosimetric monitoring of local trains was established: upon arrival and departure;
– Decontamination of station areas (18,300 m^2), passenger platforms (19,800 m^2), and freight yards and platforms (82,000 m^2) was carried out;
– Supply ventilation filters were inspected and cleaned at the Kiev and Darnitsky railway hubs;
– Materials and equipment worth 40,992 roubles were purchased to address the consequences of the accident.

5.2. For the tram and trolleybus department:
– 19 dosimetric monitoring stations were established for rolling stock, vehicles, and facility areas;
– 26 washing zones were equipped, allowing for the decontamination of all rolling stock entering service;
- systematic watering of 19 KTTU facilities, 54 dispatch stations, 71 traction substations, departmental buildings and dormitories was organised; 12 high-speed tram stations were washed four times a day, and tram tracks on the dedicated track were washed three times a day;
- special treatment of workwear was established at 14 KTTU facilities;
- 93,000 roubles were spent to eliminate the consequences of the accident.

5.3. For passenger transport:
– 37,388 vehicle days were spent on accident clean-up;
– Decontamination stations were established on individual car wash lines and stations or in close proximity to treatment facilities;
– 36 vehicle decontamination teams, numbering over 200 people, were created;
– Various overpass and floor-mounted decontamination methods were used for decontamination, with wheels and some components removed;
– Daily dosimetric monitoring of rolling stock, production and administrative premises, workplaces, and enterprise grounds has been organised and is being conducted;
– Winter decontamination stations for rolling stock have been established;
– Ventilation filters have been replaced, and contaminated waste has been removed to disposal sites;
– 459 cubic meters of contaminated sludge and 123 tons of contaminated solid waste have been removed;
– 3,400,000 roubles have been spent on accident clean-up.

5.4. Regarding trucks:
– 16 civil defence vehicle decontamination stations and 20 radiation and chemical monitoring posts were used to decontaminate vehicles;
– teams of 6–8 people were created, working in two scheduled shifts, in addition to the regular wash crews;
– decontamination of vehicles with radioactive contamination levels above permissible limits was established, which were subjected to detailed processing with partial disassembly and replacement of oil filters and lubricants;
– 22,252 vehicle days were worked in the Chernobyl Nuclear Power Plant zone from April 27, 1986 to January 27, 1987, with 30 cement trucks currently in constant operation;
– Special vehicle treatment was provided in the village of Termakhovka, where 309 vehicles were decontaminated;
– 1,570,800 roubles were spent on accident clean-up.

6. Design and Construction

6.1. GlavAPU selected and allocated land plots for construction:
- Industrial Sanitary Treatment Points for Vehicles (ISTPV) and parking areas for vehicles that have not undergone decontamination;

- Commercial car washes in 7 directions (Dnepropetrovsk, Odessa, Zhitomir, Minsk, Gostomel, Brovary, and Kharkov);
- Additional traffic police posts in the Vyshgorod and Dymersky directions;
- Paid guest parking at the entrances to the city (7 units) and along the perimeter of the central part of the city (9 units);
- Parking areas for the vehicles of the Chernobyl Nuclear Power Plant shift personnel in the Dnipro and Darnitsky districts of the city;
- sites for biomass pressing using Norba-type units in the Shevchenkovsky and Dneprovsky districts of the city;
- 60 artesian wells for water supply in the central districts of the city and 10 wells for food processing enterprises;
- sludge deposits for wastewater treatment plants at the Bortnichi Wastewater Treatment Plant;
- the radiological department of the city Sanitary and Epidemiological Station.

The route of utility lines has been determined.

The Kievproekt Main Directorate completed design work on 12 of the facilities listed by GlavAPU, totalling 439,300 roubles.

The Ukrzhilremproekt Institute completed design work on 15 projects in Kiev and the Kiev region, totalling 175,700 roubles.

6.2. During the Chernobyl disaster response, the city's construction departments and organizations completed the following construction projects within the city:

– 93 artesian wells were drilled and equipped, totalling over 4 million roubles;

– 17.96 km of water pipelines were laid from the Desna River to the Dnieper Station water intake facilities, totalling 14.25 million roubles;

– 97 km of irrigation water pipelines were installed at a cost of 445,100 roubles;

– additional storage and dewatering areas for wastewater treatment sludge were built at the Bortnicheskaya Wastewater Treatment Plant at a cost of 7.9 million roubles;

– 8 special equipment processing stations and 2 checkpoints at the main entrances to Kiev were built and equipped at a total cost of 5.23 million roubles;

– construction of 7 commercial car washes for decontamination of passenger vehicles began. 2.63 million roubles were spent in 1986;

– Two additional solid and liquid radioactive waste disposal tanks and two pavilions were built at a special facility for a total of 237,400 roubles;

– 1.9 million roubles were spent on the construction of a solid municipal waste disposal site in the village of Verkhniy Dmitrovichi, and the operation of three special sites at the site was ensured.

In addition, construction materials, products, structures, and machinery for work within a 30-kilometer zone were manufactured and delivered for a total of 757,300 roubles, and transportation was performed for a total of 574,200 roubles.

Construction and installation work was completed at eight social, cultural, and public utility facilities (residential buildings, a bath and laundry facility, pavilions at transhipment points, and village councils), and landscaping was carried out in the villages of Nebrat, Zdvizhevka, Oseshchyna, Kovshilovka, Dibrova, Poleskoye, Finevichi, and Borodyanka, totalling 3,456,400 roubles.

The bulk of the work was carried out by the Main Directorate of Kievgorstroy, Kievremstroy, the Kivingstroy Trust, and the construction departments of the USSR Ministry of Construction.

7. City Decontamination

The City Council's executive committee departments and services were involved in decontamination work. The bulk of the work was assigned to specialised departments: the Housing Department, the Kiev City Road Administration, Kievzelenstroy, and Kievspetstrans.
– Work included washing the areas of buildings and structures, mowing grass, removing garbage, and collecting and removing plant biomass and sludge;
– A total of 13,603,400 roubles worth of work was completed, involving 548,887 man-days and 28,555 machine shifts of specialized cleaning machines, mechanisms, and vehicles.
– To support the work, the specialised departments' machinery fleet was reinforced, containers for the collection and removal of waste and biomass were prepared and installed, and additional equipment and protective clothing were purchased;
– a total of 224 units of cleaning equipment were received by the departments, 96 units of equipment were re-equipped at city enterprises, and 11,685 containers of various capacities were purchased and manufactured;
– the costs of acquiring, manufacturing, and re-equipping equipment and equipment amounted to 6,303,400 roubles;
– 14.2 million square meters of city roads and sidewalks, 10.6 million square meters of asphalt pavement in courtyards, and 4,507 hectares of lawns were washed and watered daily.
– During the collection and removal of plant biomass and sludge from the city, 322,645 m^3 of plant biomass and 1,375.8 m^3 of sludge sediment were buried at a special landfill in the village of V. Dmitrovichi.
- To suppress dust, the Kiev City Road Administration paved 82 km of dirt roads at a cost of 2,065,000 roubles.
– The total costs for the preparation and execution of decontamination work amount to 22,033,800 roubles.
– The Kievzelenstroy Department of the Kiev City Road Administration provided assistance with decontamination work within a 30-km zone:
Worked: 1,106 man-days, 4,560 machine-shifts.
Total costs: 3,200,000 roubles.

8. Employment and Housing for Population Relocated from the Chernobyl Nuclear Power Plant

To provide housing for the evacuated population, the city transferred 7,500 apartments and 1,015 dormitory spaces to the USSR Ministry of Energy;
– 7,041 apartments were occupied in 1986; the USSR Ministry of Atomic Energy waived the right to occupy 300 apartments in 1986, with the right to occupy them in the first half of 1987;
– As of January 1, 1987, 146 allocated apartments remained unoccupied; residents of 6,901 apartments were registered at their residential address (20,229 people);
– Of the total working-age population of 12,240, 10,811 were provided with jobs;
– The 1,429 unemployed individuals include 971 women on maternity leave or childcare, 176 people applying for jobs, and 282 people (including 144 housewives) engaged in housing improvement or temporarily absent from the city;
– Jobs have been identified to employ these individuals.

9. Healthcare

9.1. Initially, individuals arriving from the Chernobyl zone were subjected to dosimetric monitoring and sanitization at the INR (more than 200 individuals).
More than 30,000 examinations with dosimetric monitoring were conducted at the city's healthcare facilities, and over 14,000 people underwent sanitisation, including 2,500 foreign citizens examined at hotels and the student clinic.

9.2. To examine and treat those affected by the Chernobyl accident, the following was done:
– Eight medical institutions were repurposed;
– A specialized 70-bed department was opened at Hospital No. 14;
– A supply of medications was created;
– The medical situation in the city was monitored around the clock;
– Specialist teams were dispatched to the Kiev region to provide assistance to the victims.

9.3. Medical monitoring of those exposed to ionizing radiation continues:
- Persons who suffered acute radiation sickness and radiation burns (160 people) are under constant medical supervision and are visited by doctors at least once a week; free prescription medications are permitted;
- Persons evacuated from the 30-km zone (18,843 people registered, including 12,843 adults and 6,000 children) have been examined by a general practitioner, who has conducted all necessary laboratory tests; 272 sick people were identified for every 1,000 adults, and 42 people had abnormal blood tests;
– Of those exposed to ionizing radiation, 21,418 sought treatment at city hospitals, underwent sanitization and radiation monitoring, 3,532 were hospitalised, and 165 are currently undergoing inpatient treatment;
– Of those who participated and are participating in the clean-up efforts in the high-radiation zone, 1,104 were examined before leaving for the zone;
– 8,185 were examined after work in the 30-km zone.

9.4. Issues related to the organisation of nutrition, work, and rest schedules for the population, including nutrition for children under one year old, public health measures, and other issues were discussed.

9.5. An additional 1,472,000 roubles, in addition to the approved 1986 budget, were allocated and spent to strengthen and develop the material and technical resources of healthcare facilities under the jurisdiction of the Health Department in connection with the liquidation of the consequences of the Chernobyl accident.

9.6. The Kiev City Trade Union Council prepared 30 permanent pioneer camps and sanatoriums, accommodating approximately 5,000 residents of the Kiev region, including more than 3,000 children; the number of medical workers was increased. In 1986, more than 2,000 people who participated in the liquidation of the consequences of the accident received free vouchers for their health.

Last summer, health promotion programs were organized for parents with preschool-aged children. 91,000 vouchers were issued, and 161,000 parents and children received health promotions.

9.7. The City Sanitary and Epidemiological Station, together with other organizations, assessed radiation doses to the population of Kiev based on field measurements and calculated data, and forecasted changes in these doses and the likely health consequences of radiation exposure.

10. Public Education

- During the temporary deterioration of the radiation situation, all general education schools and preschools were provided with information on preventive measures, which were implemented;
- Dosimetric monitoring of the adjacent areas and premises of schools and preschools was organized, and dosimetric monitoring certificates were issued;
- Priority employment of those evacuated from the Chernobyl zone was ensured: 3,035 places were provided in preschools in Kiev on a priority basis, with 3,186 students accepted;
– During the leaf fall period, 37,863 m^3 of biomass was collected, removed, and buried, at a cost of 155,295 roubles (including container fees);
– Pothole repairs were performed on 19,800 m^2 of asphalt concrete surfaces, at a cost of 227,505 roubles;
– Decontamination of the exterior and interior surfaces of schools and preschools was organized, an additional 200,000 m^3 of water was consumed, at a cost of 13,400 roubles;
– The Kiev Research Institute of Nutrition Hygiene developed and published "Recommendations for the Organization of Preschool Institutions and the Ensuring of Sanitary and Hygienic Conditions," and prepared recommendations on children's nutrition and the provision of dairy and meat products by age group;
– Measures were taken to organise the transportation of 139,900 students in grades 1–7 to pioneer camps in other regions of Ukraine for health improvement. 4,300 teaching staff and 500 medical workers accompanied the students;
– 7.5 million roubles were spent on schoolchildren's health improvement;
– The Department for Coordinating Urban Passenger Transport of the City Executive Committee organised automobile and rail transport from May 16, 1986 to May 29, 1986, to transport schoolchildren to Pioneer camps and to pick up children from Pioneer camps in July and August;
– The Southwestern Railway branch carried out extensive work transporting schoolchildren to other cities and recreation areas during the holidays;
In Kiev and the Kiev region, 245 trains were formed and dispatched, evacuating 250,000 children; 147 trains were formed for return, transporting 150,000 children;
– The City Sanitary and Epidemiological Station conducted surveys of radioactive contamination of suburban pioneer camps and LTOs to assess the possibility of rehabilitating children in 1986–87.

11. Regarding the Internal Affairs Directorate:

– During the entire period, 1,899 Internal Affairs Directorate employees worked in the 30-km zone;
– 84 Internal Affairs Directorate employees received radiation doses above the maximum permissible limit, 24 of whom were diagnosed with O.L.B.
– Material costs for activities related to the liquidation of the consequences of the Chernobyl accident for units financed by the local budget amounted to 515,600 roubles;
– 78,600 roubles were spent on installing security alarms in buildings in the cities of Pripyat and Chernobyl;
– 125,700 roubles worth of uniforms and military-chemical equipment were written off.

12. For the Material and Technical Supply Department and the Consumer Services Department:

12.1. The Material and Technical Supply Department allocated material resources worth a total of 6,795,100 roubles to Kiev city organizations for the liquidation of the consequences of the Chernobyl accident, including: equipment, materials, and civil defence property worth 1,428,400 roubles, and chemical materials worth 373,500 roubles.

12.2.
— from April 28 to June 9, 1986, at the city's sanitary and washing stations (SPS), 1,992 people underwent sanitary treatment, 1,908 sets of clothing and footwear were issued, and 980 people were sent to medical institutions;
– The clothing decontamination station (Volna dry cleaner's) decontaminated 250 kg of clothing. Due to the insufficient effectiveness of the work, clothing decontamination was discontinued;
– Approximately 60,000 people underwent decontamination at suburban SOPs, and 90,000 pieces of protective clothing and personal protective equipment were issued;

During the accident clean-up from May to December 1986, more than 130 dosimetrists from enterprises and organizations not part of the SOLPO service were trained.
– The Kiev Specialised Plant collected 75.9 tons of solid and 34.8 tons of liquid radioactive waste (filters, sludge) from enterprises, and decontaminated 36.5 tons of enterprise property;
– The Specialised Plant constructed four additional storage facilities for radioactive waste disposal and two pavilions for the storage and temporary storage of contaminated clothing, and two mechanized laundries were built;
– To carry out the assigned tasks, the City Public Utilities Department (SOLPO Service) purchased the following: special equipment – four DDA-66 trucks, five DDP-2 trailers, and 54 dosimetric instruments.
– Total costs: 2,054,000 roubles, including 14,000 roubles for the purchase of specialised equipment, dosimetric instruments, and other equipment.

13. Outreach Work

In connection with the Chernobyl accident, party and government bodies conducted significant outreach work among the population:

– Advisory centres were established in districts;
– Deputies and the City Executive Committee visited 2,000 apartments, conducting outreach work with residents;
– Issues related to the aftermath of the accident and the normalization of the radiation situation, as well as sanitary and hygienic recommendations, were actively discussed at resident meetings at housing offices;
- Lecture propaganda was organized;
- To engage the population in the systematic decontamination of the city, "Deputy Days" were held in all districts with the active participation of district executive committee employees and medical scientists;
- Deputy posts were established at 17 markets to conduct educational and explanatory work with traders on compliance with sanitary regulations and the sale of agricultural products;
- Mass media, radio, television, and the press were widely used for explanatory work.

14. Significant contributions to the liquidation of the consequences of the Chernobyl Nuclear Power Plant accident and the normalization of the radiation situation in Kiev were made, under the leadership of the executive committees of the city and district Councils of People's Deputies, by industrial enterprises, organizations, and institutions of the city under republican and union subordination (see Appendix 8)3.

15. For their dedicated work during the liquidation of the Chernobyl Nuclear Power Plant accident and the elimination of its consequences in Kiev and the Kiev region, 1,313 Kiev residents were awarded state awards of the USSR and the Ukrainian SSR.
The awards were primarily given to individuals who worked directly at Unit 4 of the Chernobyl Nuclear Power Plant, within the 30-kilometer zone of the nuclear power plant, and who ensured the sustainable functioning of the city: 7 people were awarded the Order of Lenin, 8 people were awarded the Order of the October Revolution, 67 people were awarded the Order of the Red Banner of Labour, 45 people were awarded the Order of Friendship of Peoples, 124 people were awarded the Order of the Badge of Honour, 9 people were awarded the Order of Labour Glory 2nd Class, 76 people were awarded the Order of Labour Glory 3rd Class, and 112 people were awarded the Medal "For Labour Valour."
128 people were awarded the "For Courage in Fire" medal, 52 people were awarded honorary titles of the Ukrainian SSR, 228 people were awarded Certificates of Honour, and 422 people were awarded Certificates of the Presidium of the Supreme Council of the Ukrainian SSR.
The workforce of the "Ukrburvod" trust and the 92nd flight squad of the Kiev United Air Squadron of the Ukrainian Civil Aviation Administration were awarded the Certificate of Honour of the Presidium of the Supreme Council of the Ukrainian SSR, and the team of the "Kyivdorstroy-2" trust were awarded Certificates of the Presidium of the Supreme Council of the Ukrainian SSR.

Head of the Environmental Protection Department I. Andryushchenko