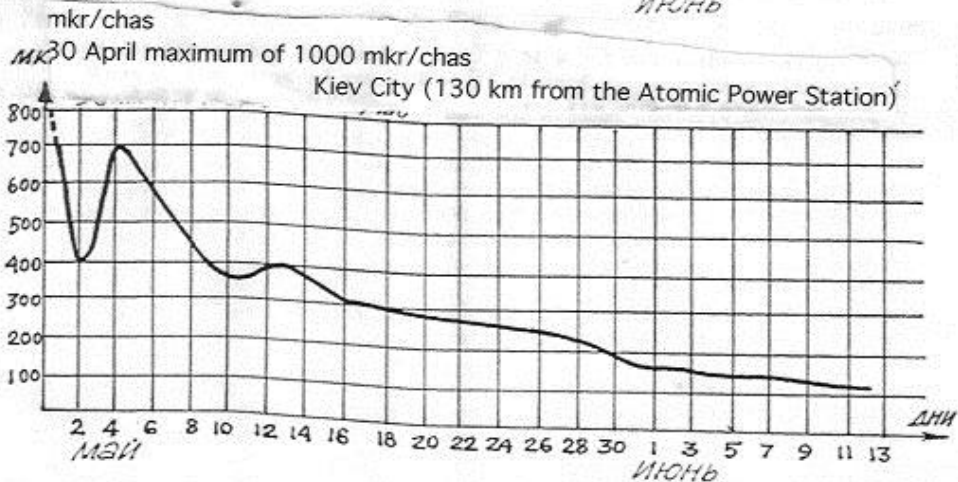
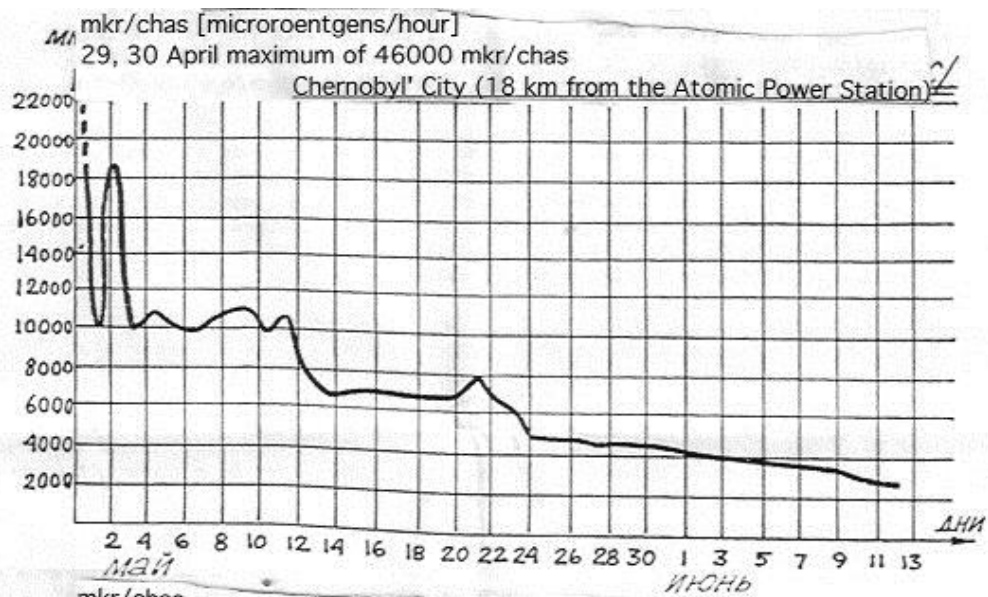


The Situation and Measures to Eliminate the Consequences of the Accident at the Chernobyl' AEhS as of 12 June 1986

The atmosphere. The state of the radiation situation in the accident region and in the city of Kiev was characterized:

Chernobyl' City (18 km from the AEhS)



During this period the radiation levels for the city of Kiev dropped by 5/6 and for the city of Chernobyl' by 90% and mainly stabilized. They are characterized by insignificant vacillations in the direction of an increase or decrease caused by a change of wind direction or fallout.

Water

Since the first days of the accident at the Chernobyl' AEhS a system of monitoring the radioactive contamination of the water has been established in the republic in the Dnepr, Desna, Pripyat', and other river basins, in all drinking water pipelines of population centers using Dnepr water, and also in other reservoirs, underground sources, and wells. The worsening of the water quality in the Kiev Reservoir began on 27 April and reached the city of Kiev on 30 April. The increase of the level of radioactive contamination subsequently spread to the Kanev and Kremenchug Reservoirs.

One of the main sources of the radioactive contamination of the Dnepr River was the drainage waters of a cooling pond of the AEhS (the [radio]activity of the water in the pond was $1.7 \cdot 10^{-6}$ - $3.5 \cdot 10^{-6}$ curies/liter, [in] the drainage canal $1.2 \cdot 10^{-7}$, and the bottom mud - 1.6 - $2.2 \cdot 10^{-4}$ curies/liter).

In the event of a further aggravation of the situation measures are planned to ensure a steady water supply high-quality drinking water to the population and industry in the city of Kiev, Kiev Oblast', and other population centers located downstream of the Dnepr River at an accelerated pace.

First-priority measures have been developed and implemented to reduce the radionuclides, and accordingly the technology of cleaning the water at the filtering stations of the city of Kiev has been changed. Work has been done to load 10 filters with effective filtering materials (zeolite, activated charcoal).

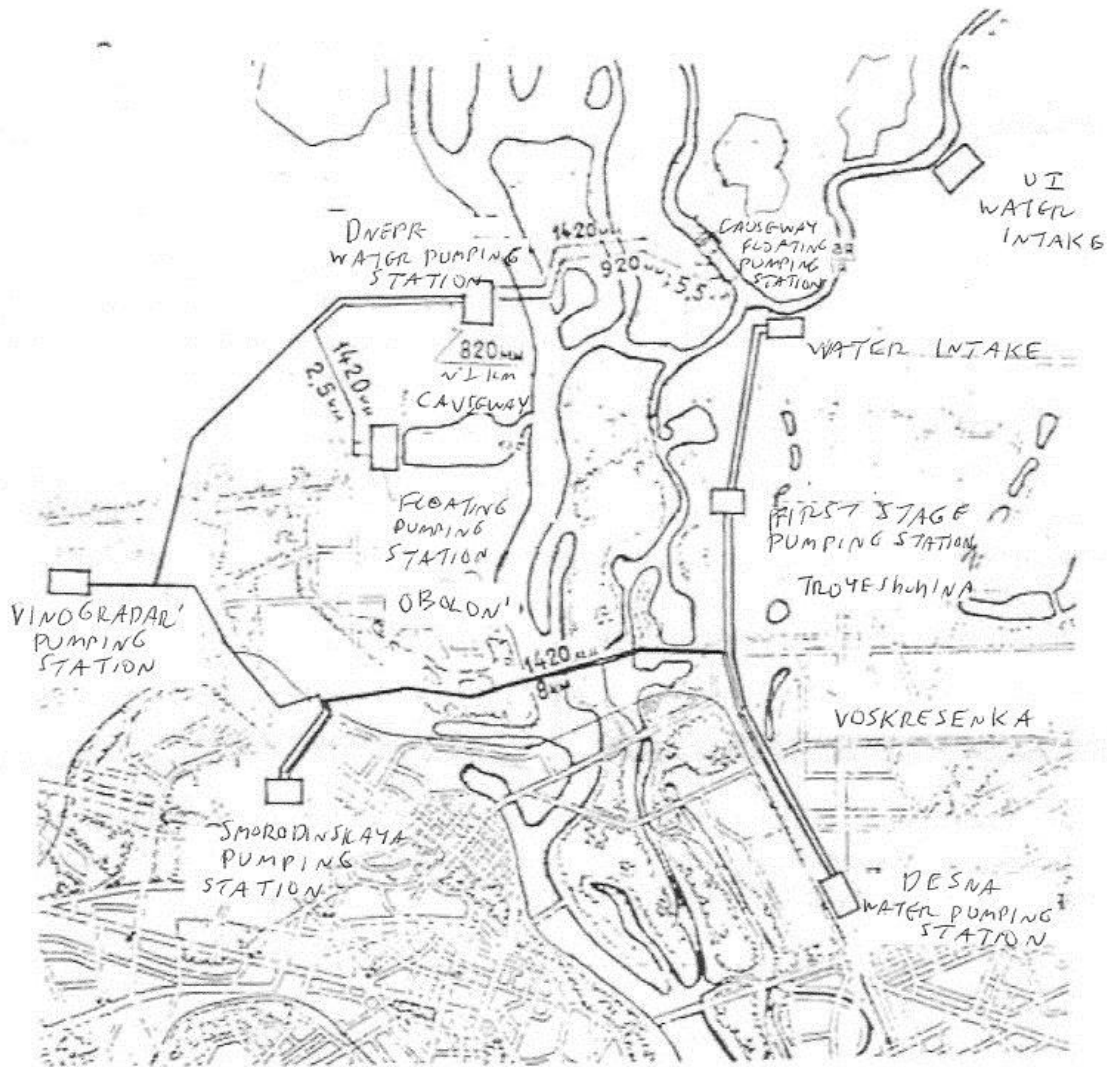
Specialized modes of cleaning water of radioactive contamination have been worked out for the cities of the Dnepr Basin - Cherkassy, Svetlovodsk, Kirovograd, Kremenchug, Dnepropetrovsk, Dneprodzerzhinsk, Zaporozh'ye, and others. At the present time special reagents are being supplied for the water pipelines of these cities and work is being done to improve the flow diagrams [*tekhnologicheskie skhemy*].

A considerable amount of work (about 20 million rubles) has been done to stabilize the water supply of the population of the city of Kiev by using the water of the river Desna and artesian wells, including the building of pipelines to provide a daily supply of 200,000 cubic meters of Desna drinking water, 350,000 cubic meters of raw [water], and 48,000 cubic meters of artesian [water].

Diagram

to ensure a stable water supply of the city of Kiev

Vyshgorod



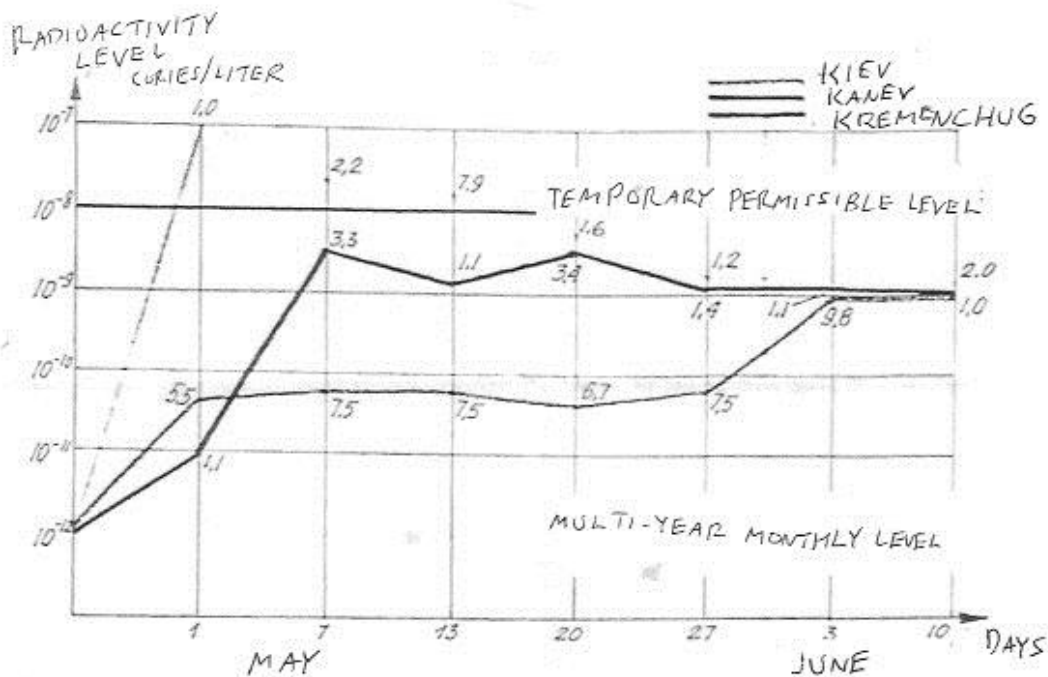
The water pipeline from the Desna water pipeline across the Moscow Bridge to the right bank part of the city. The throughput is 200,000 cubic meters of drinking water a day, which supplies water in all rayons of the city at least in the first stages. It was put in operation on 20 June 1986.

A water pipeline to feed 350,000 cubic meters of water a day from the Desna River to the bucket of the Dnepr water pipeline. This will allow an abandonment of the use of water of the Dnepr River when its quality worsens. It was put in operation 1 July 1986.

A water pipeline to feed 200,000 cubic meters of water a day from a lake in the Obolon' neighborhood to water treatment plants of the Dnepr water pipeline for two weeks. Construction has been completed and it is ready for operation.

The construction of 58 artesian wells in the central part of the city with a total throughput of 48-50,000 cubic meters of water a day. The deadline for completion is 20 June of this year.

The Dynamics of the Quality of Reservoir Water



Temporary diversion dikes of the Pripyat' River with a total length of seven kilometers have been built in the region of the cities of Pripyat' and Chernobyl'. The protective anti-flooding dikes with a total length of 26 km on the left bank of the Pripyat' River have been rebuilt.

To avert a washout of contaminated sludge ([radio]activity $1 \cdot 10^{-6}$ - $1 \cdot 10^{-7}$ curies/liter) from the Kiev Reservoir, which is the source of the worsening of the water quality of the Dnepr River, work is being completed to create an underwater dam in front of the dam and the operation of the Kiev Thermal Electric Power Station was halted beginning 6 June. The creation of similar underwater barriers is planned at the mouth of the Pripyat' River and the Kiev and Kanev Reservoirs.

Decontamination

One hundred and twenty-nine population centers, 22054 yards, 46899 structures, 5508 km of roads, 41446 hectares of crops, 21030 hectares of meadows, and 1340 km of forest (plowing) are subject to decontamination.

As of 12 June 712,902 cubic meters have been decontaminated in the special zone (the city of Pripyat', the grounds of the AEhS).

Radioactive substances have been localized by pouring in a solution of LATEKS, 673,300 square meters and by the method of covering graded earth with concrete slabs, 2,620 square meters.

Fifty-nine population centers have been decontaminated, 23 of them repeatedly, after a resurgence of the levels of radiation. Five population centers have been prepared for handover.

The population centers of Nivetskoye and Chermoshnoye have been prepared for previously evacuated residents to move back.

Three integrated transshipment stations for the decontamination of equipment, and the decontamination of people were built between 15 and 22 May to avoid radioactive contamination at the edge of the contaminated zone at a total cost of 6,700,000 rubles. The throughput capacity of the points (one day's total) for transshipping freight is 400-450 automobiles; decontamination - 250 automobiles; and decontamination - 2000-2500 people.

Eight dosimetric monitoring points have been built around the city of Kiev on the major highways and operate around the clock for the decontamination of automobiles and specialized equipment.

Medical Support

More than 1300 doctors, 2300 specialists with a secondary medical education, and 750 senior students of medical higher educational institutions, 60 officials of Kiev scientific research institutes with a clinical background have been enlisted for the medical and sanitary support of those evacuated, except medical workers of Kiev Oblast'. Three hundred forty-seven ambulances and special vehicles, 15 fumigation and bath vans, and seven tons of decontaminants have been allotted.

All those evacuated have been examined by doctors with mandatory dosimetric monitoring and laboratory blood analysis. On the whole there have been 350,500 examinations with screenings throughout the republic.

The inpatient screening and treatment of people with radiation damage is being done in clinics of scientific research institutes and medical higher educational institutions. During the time since the accident at the AEhS 11561 people of the group, 3983 of them children, have been hospitalized in all the inpatient facilities of the republic. Nine thousand eight hundred and fifty-eight people, 3413 of them children, have been discharged after examination and treatment. [inserted by hand: up to 150,000 people, including about 10,000 children, will long be under observation].

(As of 12 June 1986) 1763 people are in in-patient departments, including 570 children. Eighty-eight (all adults) of the patients have been diagnosed with radiation sickness, two of whom are in serious condition.

The medical support of workers taking part in the elimination of the consequences of the accident at the AEhS is being performed by institutions of the 3rd Main Directorate of the USSR Ministry of Health, and also by a polyclinic organized in the city of Chernobyl' based on the central rayon hospital and medical units in the places they are located and reside. Around-the-clock rapid and emergency medical aid has been organized.

Evacuation measures

Eighty-nine thousand three hundred and sixty people [inserted by hand: and 907 people in Zhitomir Oblast', = 90267] have been evacuated from the zone of the Chernobyl' AEhS. Thirty-five thousand three hundred and four of the evacuated population have been settled in Kiev Oblast', and 97% of the able-bodied population have been engaged in work. Six hundred and eighty-five people are not able-bodied, of which 596 because of caring for children and the rest because of a lack of work in [their] specialty or a refusal of work offered.

Seven thousand five hundred apartments, 1000 places in dormitories of the city of Kiev, and 500 apartments in the city of Chernigov have been allocated to house workers of the Ministry of Energy.

Three thousand apartment have been allotted in Kiev Oblast' for those who were evacuated, 8000 buildings of the homestead type are being built, and 6000 vacant homes belonging to citizens with the right to personal property are being repaired. Considering the proposed re-evacuation of the population of 21 villages of the Chernobyl' and three villages of the Polesky Rayons in which 3684 families live, this will allow comfortable housing to be provided to evacuated citizens located in the Oblast'.

An advance payment [*anas* - SIC] of 6,000,000 rubles, that is, 60% of the assumed insurance compensation, has been paid for damaged crops in order to give financial aid to collective farms and state farms which have been evacuated, and also 4,700,000 rubles have been paid for the livestock surrendered which belong to the state and collective farms and the population, including 2,200,000 rubles by state insurance organizations.

Monetary aid totaling 14,200,00 rubles has been given to 71,500 of the evacuated population, and material aid of 1,200,000 rubles has been given to 10,300 people.

The protection of public order

Subunits of the UkSSR MVD firefighting service have taken an immediate part in the suppression of the fire at the fourth power unit of the AEhS, and did not allow it to spread to other power units. Sixty-five workers of the firefighting service and 19 fire

engines took part in extinguishing [the fire]. The personnel of the firefighting service pumped all the water from the premises of the third and fourth power units, and are ensuring a continuous supply of water for the concrete work, and are decontaminating the grounds and the buildings of the station.

The firefighting situation in the closed zone is being monitored together with the UkSSR Ministry of Forestry.

Workers of the organs of internal affairs have made a report and registered the evacuees. An address inquiry service with round-the-clock operation has been organized.

Since 5 May the organs of the MVD have been providing for the security of the 30-km zone. Wire barriers, warning signs, and alarm equipment have been established around its 111-km perimeter. Order in the city of Pripjat' is being ensured on armored personnel carriers in shifts. By 1 June all houses and administrative buildings were equipped with security alarm systems.

At the present time preparatory work is being done to fence off the exclusion zone; the length of the perimeter is more than 120 km and will be a wire barrier with the Skala special alarm system.

The AEhS is being guarded by Internal Troops. Five around-the-clock posts are being set up around the perimeter and inside.

The uninterrupted and safe movement of transport to the region of the AEhS with special cargo is being ensured by 24 GAI [State Automotive Inspectorate] posts. Militia commandant's offices have been created which are conducting a checkpoint system and cargo protection at the boundary of the 30-km zone of transshipment and decontamination of freight. The fuel supply and housing for personnel are also being ensured at these points.

Every day a total of up to 4,000 personnel of the organs of internal affairs and the Internal Troops have been placed in action to preserve public order and support fire and road safety in the Chernobyl' AEhS zone.

Eighteen dosimetric checkpoints at which the decontamination of transportation and people are conducted in necessary cases have been created at approaches to the city to avert radioactive contamination of the city of Kiev.

Trade and Consumer Service

In connection with the loss of the ability to use the production of personal farm plots the demand for and the increase of the sale of perishable food products (whole milk products, canned meat and dairy goods, sausage products, etc.) at state retail prices have grown considerably in rayons where the evacuated population are being

housed. Up to 100 tons of milk and other whole milk products are shipped here daily. The release of children's milk formula and dry whole milk to pregnant women, nursing mothers, and children, for which 160 tons of these products have already been shipped, has been organized.

The number of work places in retail trading enterprises has increased by 30%, allowing for mobile food trucks; in public catering enterprises, by 2100, and their throughput capacity has quadrupled or quintupled.

The majority of these enterprises work in two shifts, and where necessary the public catering enterprises serve around the clock. Food is given out per the 3rd surcharge category (as in industrial cafeteria enterprises).

The population which did not manage to take the necessary clothing during the evacuation from the city of Pripyat' was sold on credit, without a first installment, clothing, shoes, and other manufactured goods for 150,000 rubles. People whose clothing ended up contaminated above permissible levels were given 34,200 items of clothing and shoes worth 722,500 rubles. Fourteen thousand eight hundred and thirty-seven people were re-clothed.

Three hundred sixty-nine thousand four hundred and ninety people and 36,000 kilograms of linen have been decontaminated. Six thousand kilograms of linen with a high level of radiation have been put in temporary storage.

Twelve consumer service points have been organized in the zone of the Chernobyl' AEhS: laundries, barbering, baths, and shops for the repair of watches and household appliances. Twelve thousand orders for consumer services have been fulfilled.

Two hundred and forty-one units of a consumer services network have been instituted in the Makarov, Borodyanka, Ivankovo, and Polesky Rayons of Kiev Oblast' where the evacuated population is concentrated, including 16 consumer service centers, 92 integrated reception centers, six baths, and other consumer service facilities. In a month and a half services worth 198,900 rubles have been given.

Transportation, Road Construction, and Communications

Rail transportation has delivered 4,000 rail cars, or about 180,000 tons of freight, for the production of work associated with the accident, including 5,000 tons of lead, 24,500 tons of pipe, 26,000 tons of cement, 25,000 tons of gravel, 16,000 tons of reinforced concrete and metal parts, 2,500 tons of liquid nitrogen, 8,700 tons of distillery waste, and 4,400 tons of latex. During this time 2,400 rail cars were shipped out and there are 1,600 awaiting unloading.

The river transportation of the republic has transported 144,000 tons (concrete mix, gravel, iron-ore pellets, and reinforced concrete blocks), 58,000 tons for the construction of the Desna water pipeline and 48,000 tons for the repair of the dike.

During this period the continuous operation of general-purpose vehicle transportation allowed more than 80,000 people to be transported out of the dangerous zones, and 12,500 tons of cement, 10,000 tons of reinforced concrete structures, 2,000 tons of metal and 1,000 tons of lead to be shipped directly to the area of the reactor, and also 75,000 tons of gravel and 62,000 tons of asphalt for the construction of roads.

To make these shipments 36,208 trucks and 7,605 buses, of which 20,102 were cargo, and 6,512 operated directly in the zone of contamination, taking replaceability into consideration with the goal of not allowing a high level of radioactive contamination.

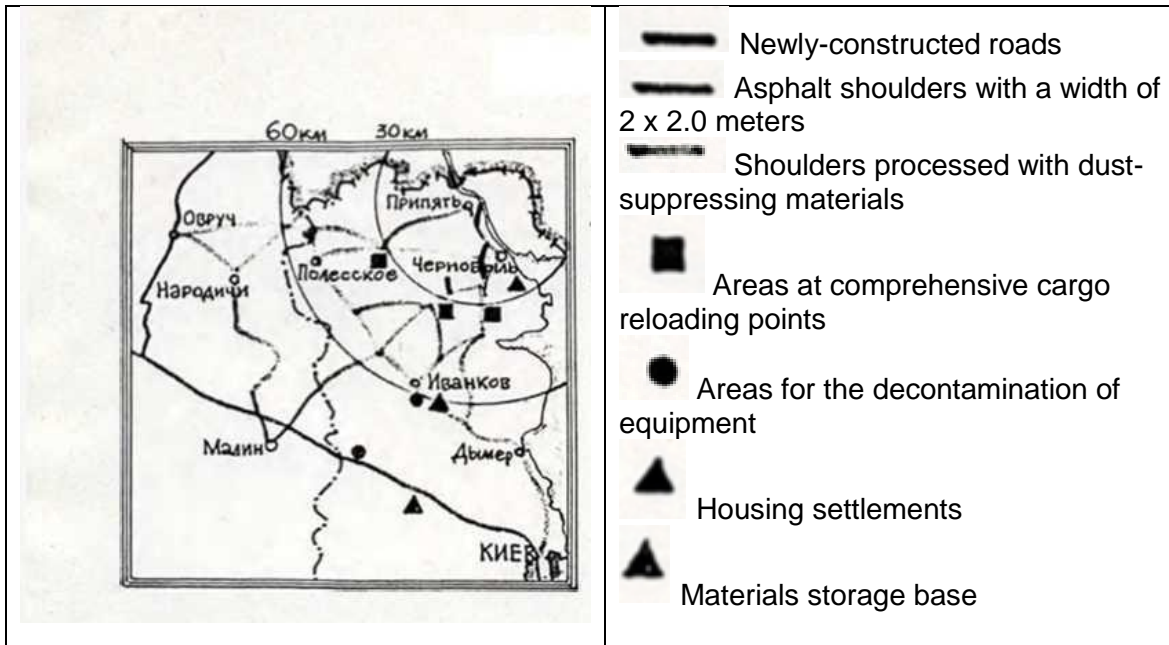
More than 60,000 vehicles worked to the permissible level of radioactive contamination; three decontamination points for vehicle transportation equipment were constructed. However, 947 units of rolling stock have a contamination above 0.5 milliroentgens/hour after repeated decontamination which cannot be removed.

A shipment of watch rotations, medicines, and food products is being made. One hundred and four laboratories have been created to provide dosimetric monitoring of food products.

In May of this year more than 201,000 students were sent out to Pioneer camps by rail and automotive transport, including 126,000 from the city of Kiev, 59,000 from Kiev Oblast', 14,000 from Zhitomir [Oblast'], and 1,700 from Chernigov [Oblast'].

Communications engineers of the republic have provided about 140 direct communications channels; installed more than 60 VCh and Iskra apparatuses with Moscow, Kiev, and oblast' centers of the republic; and 360 additional channels have been organized, and branch communications networks have been expanded. Additional postal communications have been organized for those working in the zone.

Two hundred and forty kilometers of cable lines have been laid in a month and equipment for 490 communications channels has been installed [costing] a total of about two million rubles.



The road organizations of the UkSSR Ministry of Construction have built: an approach road to reactor N^o 4 and the AEhS cooling ponds, a western bypass road around the city of Chernobyl' - six km; and others (a total of about 11 km).

The areas and passages at three integrated freight transshipment points at the population centers of Dibrova, Dityatki, and Starye Sokoly with a total area of 48,000 square meters, two areas for the decontamination of transport in the village of Sidorovichy and the urbanized village of Ivankov with a total area of 5,100 square meters;

a bituminous concrete surface on shoulders in a sector of the Ivanov-Chernobyl'-Pripyat' road with a length of 33.8 km. Roads with a length of 522 km have been treated with film-forming materials.

The elimination of dust and decontamination of up to 1200 km of vehicle roads are being done daily in the Chernobyl' AEhS zone on the approaches to it and to the city of Kiev.

One thousand to one thousand three hundred people, 600-800 units of machines [mezhnizmy] and transport equipment, including up to 150 street-washing machines, are engaged in road work daily.

Issues to be discussed

1. Considering that the underlying soil of the cooling pond has an increased filtration capacity and that contaminated water is already falling into the river, and also the high level of contamination of the bottom land of the Pripyat' River a threat has arisen to providing high-quality water from the Dnepr River to the population and

economy in a majority of the territory of the republic. Work to construct a cut-off wall [*protifil'tratsionnaya* [SIC] *zashchita*] in the area of the cooling pond and the working area of the AEhS side needs to be stepped up and also the resolution of the question of the construction of a bypass channel to divert the Pripyat' River into the Dnepr River to bypass the strongly-contaminated zone.

2. An acute need for trucks has arisen to ensure urgent mass shipments of food, industrial, and other freight. At the same time it ought to be taken into account that 2600 buses and 620 automobiles of the vehicle transportation enterprises of Kiev and Kiev Oblast' will be subject to storage for a long time because of the increased level of radioactive contamination.

In this connection the question needs to be resolved of the approach of the apportioned delivery [*fondovaya postavka*] of trucks to the UkSSR Ministry of Vehicle Transportation for 1986 in the amount of 5926 automobiles, 1386 trailers and semitrailers, and also to assign 2600 buses, 1113 trucks, and 230 trailers and semitrailers beginning on the second half of this year.

3. In connection with the need for a deep and comprehensive scientific development of recommendations to reduce the effect of radiation on the population and of measures for the prevention and limitation on the signs of radionuclides in the human organism, and to forecast morbidity we consider it advisable to organize a scientific research institute of the problems of radiation protection of the UkSSR Ministry of Health in the city of Kiev.

4. The situation at the fourth unit of the reaction is being completely controlled. A great amount of work has been done in the time since the accident, which has allowed the [radio]activity of the reactor to be considerably decreased, the temperature lowered, and preparatory work to be conducted to bury it.

However, radioactive emissions from the reactor continue. In the process at the present time long-lived radioisotopes such as strontium, cesium, plutonium, and others account for a great proportion.

The level of radiation after decontamination is gradually growing and reaching previous values in practically the entire territory of the radioactive contamination. Repeated processing has to be done.

The USSR Ministries of Medium Machinebuilding and Energy are still slowly deciding questions associated with the closure of the damaged reactor.

It is necessary to considerably speed up all the work to build a "sarcophagus" and bury the reactor.

[illegible signature]

11 June 1986

