Tape 1 side A


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In all my life, it never occurred to me that I would have to start this part of my life. At least not at the age that I currently am, just into my fifties. I have to start the part where I create my memoir. And this part is tragic, confusing and incomprehensible.

However, an event occurred, of such a scale, of such involvement of people with controversial interests, of errors and victories, failures and successes. There are so many different interpretations of how and why this happened, that it is in a way my duty to tell what I know, how I see and understand it and how had I witnessed the events that occured.

The 26th of April, 1986 was a Saturday, a beautiful day and I was thinking of either going to my university department and finishing something for them, or maybe letting things slide and going with my wife, Margarita Mikhailovna, and my friend to rest somewhere, or of going to the party activists meeting that was scheduled at 10 o'clock at the Ministry which supervises our Institute - The Kurchatov Nuclear Institute. Of course, because of my nature, and old habits, I called a car and went to the activists meeting.

Before the start of the meeting, Nikolai Ivanovich Yermakov, the head of the of Medium Machine Building Ministry, under whose supervision our entire university was, walked up and said calmly but with disappointment, that an unpleasant accident had happened at the Chernobyl Station.

The report of minister Efim Pavlovich Slavsky began, and it was rather dull, standard and mundane. We all were already used to how this very old yet good demagogue, with a loud confident voice, narrated how good things were in our ministry for an hour . All the metrics were perfect in his report: the best sovkhozes, the best enterprises, and all goals had been achieved. Altogether this was like a victory speech.

At points, he would pause to criticize a chairman or a specialist for higher rate of workplace injuries, or poor financial performance, or for improper execution of a technical operation within our ministry.

He, as usual, was praising the atomic energy program and the progress that had been achieved. However in between his praise he somewhat abruptly mentioned that there had been an accident at Chernobyl. The station was under the supervision of our neighboring Ministry of Energetics. Well, rather curtly, he said that they had somewhat messed something up, and an accident of sort had occurred there, but this would not stop the overall development of the atomic energy program. This was followed by a routine report that continued for 2 hours.

Around noon, a break was announced and I went up to the second floor, to the office of the Science Secretary Nikolay Sergeevich Babay to discuss the report. Immediately after me, Aleksandr Grigorjevich Meshkov, First Deputy Minister of Medium Machine Building entered the room, quickly stated that a Government commission has been formed to investigate the Chernobyl accident, and that I have been assigned to that commission. I was told that the members of the commission should gather at Vnukovo airport at 1600 hours. I left the meeting immediately, took a car and went to my university to find someone from the reactor team.

With great difficulty I managed to find the head of the department that developed and supported stations with RBMK reactors (the same type as in Chernobyl) - Alexander Konstantinovich Kulagin. He already knew about the disaster and that they had received a very bad alarm signal from the station the night before. The signal was encrypted according to defined procedure; that during each and every deviation from normal operation, the station shall inform the Ministry of Energetics or the ministry it belongs to about the situation by using a special code. In this case, they had received the following signal: "1-2-3-4"; which means that an event had occurred at the station that involved nuclear hazard, radiation hazard, fire hazard and explosive hazard, i.e. all possible types of hazards.

It would seem that this is the worst case scenario. He said to me that, as planned in advance, teams were gathering to respond to each hazard and either go to the site itself, or coordinate from a distance, and take over control of the station personnel. An appropriate team was gathered at night and approximately within 3-4 hours, they departed to the site. However, while they were on the way, new messages arrived from the station stating that the reactor (and this was 4th block reactor) was fairly under control. The operators had tried to cool it down, but unfortunately, 2 people had already been killed. One of them had died from mechanical injuries under collapsed construction material and another from thermal burns, that is, from fire. No information was received about radiation-related injuries and this information, while not clear, did calm us down somewhat.

After taking all the necessary documentation and receiving from Comrade Kalugin some understanding about the structure of the station and the possible issues that could occur, I dropped by . At this time , as planned, brought my wife back from her work. We had to get in touch to solve some family issues, which of course remained unsolved. I said to her that I'm leaving on a work trip and that the situation is not clear so I cannot tell for how long I will be away. And then I left for Vnukovo.

At Vnukovo, I found out that the head of the Government Commission was Boris Evdokimovich Scherbina, the chairman of the Bureau of Fuel-energetic Complex. He was not in Moscow at the time but in another region where he was leading a Communist party asset meeting. We knew that he was on a flight over from there and that as soon as he arrives we would board the plane that had already been prepared for us, and depart to the accident site.

The first approved composition of the Government Commission, as far as I know, remember, was apart from Scherbina: the Minister of Energetics Mayoretz; the Deputy Minister of Healthcare Vorobiev Eugeny Ivanovich, who arrived to Vnukovo just before Scherbina from another region of Soviet Union; our longtime employee, member of USSR Science Academy Viktor Alekseyevich Sidorenko. The Deputy Chairman of the Government Nuclear Energy Supervision Bureau was also assigned to this commission. Additionally there were comrade Soroka, Deputy General Prosecutor of the USSR; and Fyodor Alekseyevich Scherbak, the head of one of the important divisions of Government Safety Committee (the KGB); as well as the Deputy Chairman of the Ukranian government, who should have been at the site already; comrade Nikolayev; and the head of Regional Executive committee, comrade Ivan Plyusch. This was the rough composition of the government commission, that I remember as the initial one.

As soon as Boris Evdokimovich arrived at Vnukovo, he immediately boarded our plane and we flew out to Kiev. During the flight, our conversation was nervous. I was trying to explain to Boris Evdokimovich about the accident at the Three Mile Island in 1979. I wanted to prove to him that most likely the cause of that accident was in no way related to the Chernobyl accident because of fundamental differences in the construction of reactors. This is what occupied us on our hour-long flight.

In Kiev, after we unboarded our plane, what surprised us was a long line of black government cars and an anxious crowd of various chairmen of Ukraine, who were led by comrade Lyashko Aleksander Petrovich. They all were worried, and they didn’t have enough precise information; however everyone was saying that the situation was really bad. We didn’t get precise information here, so we got into our cars as soon as we could and set off for the station. I was in a car with comrade Plyushch. The station was 140km from Kiev. The trip was in the evening. Having little information, we were getting ourselves ready for a very uncommon work. Because of that our dialogue was rather fragmented with long silences in between. Everyone was tense and everyone was anxious to get there quicker to understand what had happened there, of what scale was the disaster that we had to face.

Recalling this trip now, I must say that I had absolutely no idea that we were moving towards an event of a planetary scale, that would most likely be remembered like events such as famous volcanic eruptions; Pompei for example or something similar to that. We didn’t know this during the trip there, we just were trying to guess the scale of the event. Will it be easy or difficult? In other words all our thoughts were about the upcoming work.

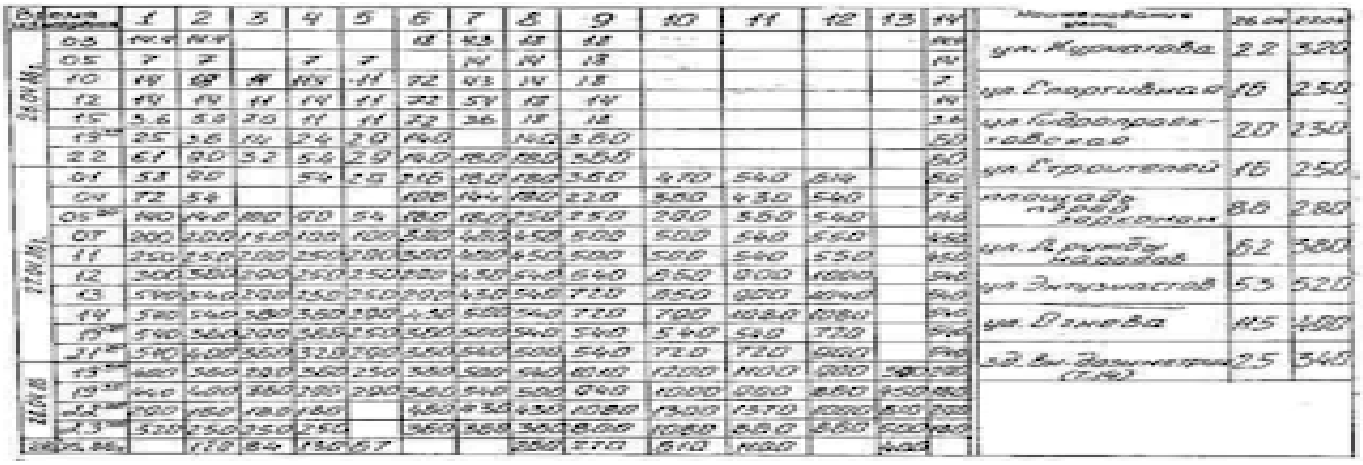
In a few hours we got to Chernobyl. Although the station is called Chernobyl Station, it is situated 18 kilometers away from this regional city. It is a very green, very pleasant city, like a quiet countryside - this was the impression we got when driving through there. It was calm and quiet there, all was ordinary.

Then we got onto a road that led to Pripyat, which is a city of energetics, where builders and workers of Chernobyl power plant were living. I will discuss the station itself, it’s history and operation a bit later so I won’t disrupt the chronological order of my record. In Pripyat we could feel the tension in the air. We arrived at the building of the city party committee that was in the central square. Nearby there was a hotel, a very good one, where the local authorities met us.

Mayorec was already there; he had arrived even before the Government Commission. Also a group of specialists were there, who had arrived after the first call in the night.

Immediately the first session of the Government Commission was arranged. To our surprise, or at least to my surprise, we were not presented with sufficiently precise information of the situation both on the station and in the city. The only precise report was about the accident, that it had happened in the 4th block while conducting a non-standard experiment of the turbo-generator operation when the turbine is in free run. Two explosions happened and that caused the destruction of the reactor building. A considerable number of the staff were injured. The number was not precise, but it was clear that around 100 people had gotten radiation injuries. Two people had died, others were in the hospitals and that the radiation conditions in the station were rather complex. The radiation conditions in Pripyat were considerably worse than normal, but at the time did not pose any significant danger to the people in the city.

That's true. See chart below.



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The Government Commission's session was led very vigorously in his usual manner by Boris Yevdokimovich Shcherbina. We quickly organised members into groups, each with its own task.

The first group, led by Alexander Grigoryevich Meshkov had to start the investigation into the cause of the disaster. The second group, with comrade Abagyan in charge, had to organize all the dosimetric measurements around the station and in Pripyat, as well as in the closest surrounding areas, with the civil defence groups handling the rest. By this time General Ivanov had arrived, who would lead the civil defence group of that region and had to organize preparatory measures for possible evacuation of civilians and firsthand decontamination work. General Berdov, the head of the Ministry of internal affairs of the republic [Ukraine] had to organize the order according to which people could be inside the contaminated areas. As for myself, I was put in charge of the group that had to develop measures to localize the accident. The group led by Evgeny Ivanovich Vorobiev was assigned to handle all the medical problems.

When we were just nearing Pripyat, about 8-10 kilometers from it, I was struck by the appearance of the sky. It was like mulberry, or even crimson maybe, glowing above the station, which made it absolutely unlike how it should be in a nuclear power station. It is known that nuclear power stations are very clean and accurate, with all their facilities and pipes which usually don't output anything visible into the air. And a nuclear station for a specialist is usually an object that doesn't produce any gases. This is its distinctive feature, if we exclude some specific facilities. But this one looked like a metallurgical factory or a giant chemistry plant with a huge crimson glow over half of the visible sky. This was very disturbing and made the situation very unusual.

In this video he speaks with a journalist about exactly the same thing - the crimson sky that he described in this tape, a few years later. https://youtu.be/926ShgBaWZ8?t=657

Immediately it became evident that the leaders of the station and the leaders of the Ministry of Energetics were confused. From one side most of the staff and leaders acted very bravely and were ready for any required action. For example, the operators of 1st and 2nd blocks didn't leave their posts. Same for the 3rd block which was in the same building as the 4th block. The various services of the station were fully ready. That is one could find any person and send any command or assignment. But which commands or assignments one should dispatch before the Government Commission arrived?

The Commission arrived at 20:20 on the 26th of April. There was no precise and sensible plan of action. The Government Commission had to do all of it. Firstly the 3rd block was ordered to shut down*. The 1st and 2nd blocks continued to work despite their internal rooms having a relatively high level of contamination which was around tens, or even hundreds, of milliroentgens per hour. That internal contamination had happened because of the ventilation intake. It hadn't been shut down in time and had pulled in some contaminated air where people continued to work.

* Boris Stolyarchuk in this interview (in Russian) says that Dyatlov ordered that immediately after the explosion. However in the declassified KGB document, it is said that this was done by the Government Commission.

And so, the first team which went in there had to immediately to start the reactor shutdown procedure of the 1st and 2nd blocks. This was done by initiative of Alexander Egorovich Meshkov, he issued that command, not station leaders or the energetics ministry. Execution of that command begun immediately.

Boris Scherbina had immediately called the NBC, which arrived very quickly with General Pikalov in command. Helicopter divisions were also incoming. These were based in Chernigov, with General Antoshkin who was the Head of Headquarters of that Air Force division. They started flyovers above the 4th block to asses the situation.

From the first flight, it became clear that the entire reactor had been destroyed. The upper , nicknamed "Yelena", that hermetized the reactor, was in an almost vertical position, but angled a bit. In other words, it was clear that it had torn away, which needed a considerable amount of force. So, the upper part of the reactor hall was completely destroyed. On the roofs of the engine room, and on station territory pieces of graphite blocks were scattered. Some quite large Heat Emitting Rod elements could be identified. Thanks to my experience, coming from other workplaces, I quickly determined the cause of this damage - a volumetric explosion of the power of 3 to 4 tons of TNT.

The crater in the reactor constantly flowed with white column of smoke, consisting probably of graphite combustion by-products. Inside the crater, glowing spots of intense crimson were seen. However, it was hard to say what the cause of this glow was. It could have been hot graphite blocks that had remained in place. Because graphite burns uniformly, generating whitish burning products, same as in an ordinary chemical reaction. The visible glow, reflected in the sky, was the glow of hot graphite. So powerful it was.

Radiation levels were quickly measured at different points of vertical and horizontal planes around the reactor. As had been observed, a lot of radiation had leaked out of the 4th block, but at that time

we were mostly worried about whether the reactor was still working. That is, was it generating short-lived radioactive isotopes. Because we needed that information immediately, a first attempt to measure the gamma and neutron fields was made. A military APC [ ], property of the NBC was used for this. The first measure showed that there was a powerful source of neutron radiation. This may have indicated that the reactor was still working.

To make sure of this, I had to get into that APC, go near the reactor. It appeared that within those powerful gamma radiation fields, the neutron channel of the measuring device wasn't working, because it "felt" those powerful gamma rays within which it became erroneous. That's why the most precise information about the state of the reactor was gathered from the ratio of short-lived and long-lived isotopes of iodium 134 and 131. Then, by making radiochemistry measurements quite quickly we established that no short-lived iodium isotopes were being produced and hence the reactor was not operational and was in sub-critical state.

Following up, in the next few days multiple analyses of gas components showed that no short-living isotopes were flowing out. And this was the main evidence for us that the fuel mass, left after the explosion, was in a sub-critical state. After performing those initial estimates about the reactor activity, the next problems began to be of a major concern to us. Firstly, the fate of the population, and the number of station personnel that should remain at the station and, even in such a state, continue to service it. Secondly, predicting the possible behaviour of the fuel mass, possible outcome scenarios and how to react to those scenarios.

By the evening of the 26th, we had tried out all the possible active zone flooding possibilities. This did nothing except high vaporization and the water flooding many service rooms in the neighboring block. It was clear that the firemen who had extinguished the fires in had done it very quickly and professionally.

Sometimes they say that many firemen got high radiation doses pointlessly, because they were standing at certain spots monitoring that new fires don't start. They say that this was a poor and uneducated decision. That is wrong because the engine room had a lot of oil, hydrogen inside the generators and other sources that could not only start a fire, but could even cause another explosion that would devastate the 3rd block. This is why their actions were not only heroic but very professional, educated and correct from the point that they took the first precise steps to localize the accident and prevent it from spreading.

The next question arose before us when it became clear that the crater of the wrecked 4th block was erupting a lot of aerosol gas radioactivity. It was clear that this was the graphite that had been burning and each particle of it carried with it a significant amount of radioactivity. So we had ourselves a new difficult task: the graphite burns at a speed of 1 ton per hour, there was 2500 tons of graphite in the 4th block, so for [sic] that mass would have been burning, carrying out radioactivity with the smoke. Those particles could have contaminated a lot of territory.

The temperature inside the wrecked block would be limited by the temperature of the burning graphite, that is around 1500C or just a bit higher. Some sort of a balance would be achieved. As a result, the uranium oxide fuel elements would melt and stop producing additional radioactive particles. But that radioactivity, which would be carried out with the smoke, would heavily contaminate a considerable area. The radiation conditions allowed to perform any sorts of actions only from the air, and only from a height of more than 200m above the reactor, which meant that we

didn’t have any technical means to put that graphite fire out in a traditional way, for instance with water or foam.

We had to develop non-traditional ways of solving this problem. was conducted in constant consultation with Moscow, where someone was continually on the phone, for example Anatoly Petrovich Alexandrov. Numerous other scientists from the Nuclear Energy Institute and also from the Energy Ministry took active part in our discussions. Every service, for example the firemen in their part, were also in constant contact with all relevant Moscow organisations. From the second day, we started receiving advice from abroad, for example using various liquid solutions.

The reasoning behind our decisions was this. First of all, we had to drop as much substances containing Boron as we could, so that under any conditions of fuel mass movements they would provide enough effective neutron absorber. Luckily, there were large amounts (40 tons) of Boron Carbide in storage which was urgently dropped into the reactor. This way, we fulfilled our first task and introduced as much neutron absorbers as we could.

The second task was to drop materials that would stabilize the temperature. This would be achieved by forcing the energy that was being generated by the decay of nuclear fuel to be spent on material phase transitions [melting for example]. The first idea that I had about this was to drop large amounts of iron shot. The station had lots of it in stock - it was used in construction, to mix with concrete in order to make it heavy. Unfortunately, the storage where iron shot was stored, had come under the first cloud of radioactive particles and all of it was contaminated, making it impossible to work with safely. Also, we didn’t know the temperature inside the core. For example, if it was less than the melting temperature of steel, then dropping it won't be sufficient. Because we could miss the lower stabilisation temperature levels.

So, after numerous consultations and discussions we selected two materials as temperature stabilizers: lead and dolomite. First one, clearly because it melts at low temperatures; secondly, it has some ability to extract radioactive elements; thirdly, when it solidifies it can create sort of a screen from gamma rays. All this meant that this was a good choice. Of course there was a concern that if temperatures down there were significantly higher, say 1600-1700C, then lead would just evaporate and be carried out of the reactor; and cause additional contamination of some areas; and also this measure would be ineffective.

Because of these concerns, I got a group of Doneck scientists from the Ministry of Energetics of Ukraine under my supervision. They had Swedish (“Ada” company) devices, such as thermovisors, and started constant flyovers around the 4th block to record the temperature of the surface. It was a very difficult task, because the semiconductors used in these thermovisors were heavily affected by the powerful gamma radiation that hit them, thus skewing the results drastically. That’s why I advised to use additional thermocouple temperature measurements that would be conducted from the ground.

Eugeny Petrovich Razantzev took on this task together with helicopter people. They used very long rods to lower the thermocouples. Very difficult task to measure the surface temperature ...

Finally, because the graphite was still burning, I asked to gather air samples from various points to send them to Kiev so that they can analyze CO2 and CO components and their ratio. I could use that data to judge roughly the maximum temperature inside the 4th block.

By analyzing this entire set of data gathered as described, we came to a conclusion that inside the reactor, there were small areas of high temperature around 2000C, while most of the surfaces were heated up to around 300C. So in this aspect lead would be an effective measure. After all this study, 2400 tons of lead was dropped there by the helicopter services with great

The amount of dropped lead grew from day to day. I was shocked by the speed and scale at which all the needed materials were delivered to fulfill this operation. But, taking into account that there were also high temperature areas, we decided to use a carbonate, dolomite for instance, which would perform the same task as lead. where it was possible to stabilize the temperature by spending excessive energy on decay of dolomite components. One of these components is Magnesium OA [sic] - an oxide with relatively good thermal conductivity and, like lead, when it gets into place, it enlarges the area of thermal radiation, it transfers heat to all other metal construction elements. But it is not a metal. And the oxide reduced the oxygen concentration within the zone of fire which helped to extinguish it. This whole group of materials according to this reasoning was dropped into the destroyed reactor.

Anatoly Petrovich Alexandrov strongly recommended to us to also start dropping clay. It is a rather good sorbent of radionuclides. The clay and sand that was dropped in large amounts was intended to be used as a filtering layer which could hold at least part of the radioactive components should the uranium dioxide cells start to melt.

It is clear that dropping anything from a height of 200m created a complex situation around the 4th block. Because when 200kg of weight falls from a height of 200m it throws up dust, and that dust carries some radioactivity with it. Yet, these particles agglomerated in the air and fell down again within the station territory. This cloud itself was a kind of protection against the aerosol particles which could have been carried away to large distances otherwise.

Judging by radioactivity outflow from the 4th block, its quantity and dynamics, our actions were quite effective, and a considerable amount of radioactivity was localized and did not spread to large distances, except for Cesium and Strontium - the most easily melted elements.

In this way, the sum of all actions allowed us to seal the 4th block and to create a layer of filtering materials, prevent melting of the fuel itself by blocking many of endothermic reactions. This whole allowed to considerably reduce the spread area of radioactivity from the 4th block and the station to other areas.

These were the localisation efforts. The decisions were made on the 26th of April, and carried out from the 26th of April till the 2nd of May inclusively. This was the main period when we dropped materials into the reactor. After the 2nd of May, we stopped the drops and held a pause. Then around the 9th of May, we resumed when a fiery area was spotted in the reactor. It was either graphite or some metallic construction of rather high temperature. We dropped another 80 tons of lead in there and that was the last massive drop.

Apart from the mentioned materials for temperature stabilisation or for the creation of the filtering layer, we carried out a dust suppression operation. This was proposed by Boris Veneaminovich Gidaspov, a member of the Science Academy, who had come to help the scientists that worked there (this was later, around the 10th of May). Special solutions were filled in plastic bags and dropped into the reactor. There they would burst and cover a significant area; the solution would polymerize and solidify. Additionally the same thing was done to surfaces that could create dust. All these measures were, I repeat, planned on the evening of the 26th of April. They continued till the 12th-15th of May with the main drops ending as said on the 2nd of May.

This was the localisation part. Of course, we constantly gathered air samples on filters to measure the radioactivity that was being carried out, and to review its dynamics. If the first cloud had carried away around 1000 curie of radioactivity a day, then by my second departure date from Chernobyl it was a 100 curie a day and falling.

Of course there was a lot of argument about the precision and correctness of the measurements and calculations performed. As a result, even basic measurement culture wasn't guaranteed at all measuring points. However, I will speak about this a bit later.

Earlier I described the work before and after the localization of the accident, but a much more important decision to make on the 26th of April was the population question. Immediately after we had decided how to cool down the reactor in the 4th block, the discussion about Pripyat started. On 26th evening, the radiation levels were within allowable limits. Starting from one milliroentgen per hour and up to a maximum of tens of milliroentgen per hour was not a healthy environment, but it did allow for a discussion.

In these conditions, where on one side we had repetitive radioactivity measurements and on the other, the medics were limited by accepted order of things where the evacuation could only start when there was a risk of a person getting 25 biological roentgens per individual within some period of time. The evacuation was mandatory when a person could get 75 biological roentgens. But within 25 - 75 biological roentgens, the decision to evacuate lied with the local authorities. So in these conditions we started the discussion.

I must say that all physicists, especially Viktor Alekseevich Sidorenko, felt that the conditions would only change for the worse, and insisted on the mandatory evacuation. And the medics sort of

supported this. Around 11 a.m. on the 26th of April, Boris Evdokimovich [Scherbina], after considering all our recommendations, decided to go ahead with the mandatory evacuation. After that, Ukraine representatives, comrade Plyusch and comrade Nikolaev, started to prepare for the evacuation of the city scheduled for the next day.

This by no means was an easy operation. Transport was needed; it was called from Kiev. Drivable roads had to be scouted to plan routes for the evacuation. General Berdov led this work, and also organized the task of informing the public so that they don't come out of their houses. Unfortunately this meant that the information was disseminated only verbally - they visited each house, also posted notices. It seemed that not absolutely everyone was fully informed, because mothers with children were seen on the streets on the morning of the 27th.

At 11 a.m., we were officially informed that the whole city would be evacuated by 2 p.m.. All the transport had been gathered; all the routes had been identified; and at around 2-2:30 p.m. the entire city was empty. Except for the station workers, and some workers that were needed to operate public services.

The station personnel was transferred to a Pioneers camp "Skazochniy", that was 10 km from Pripyat. The evacuation was fast and precise, despite being carried out in unusual conditions.

However, there were some issues. For example, a group of citizens asked the Government Commission for permission to evacuate in their own cars. There were a couple of thousand of such cars in the city. After some considerations, the Government Commission allowed them to use their cars. Perhaps that was a wrong decision, because some of those cars were contaminated, and the dosimetric posts had not yet been organized to control .

In such a way, many personal items that people took with them got out of Pripyat and carried the contamination with them. They, however, took a minimal number of items because they were

hoping that . However, I will repeat myself that the evacuation had been carried out at such a time when the radiation levels of Pripyat were not that high; and therefore the level of contamination of the items, as well as the people themselves, was also not high. It has become clear now that none of the almost 50,000 civilians of Pripyat, that were not at the station after the accident, had received any considerable amount of radiation.

That was the second line of defence- protection of the people. After that, more and more thorough dosimetric measurements of the situation were carried out. The isotope composition was analyzed more thoroughly. This was done by the services of Government Hydro-Metric Commission and by General Pikanow's services, as well as the station services. I must say that both the dosimetry services and military had done great work, however, the most precise information we got came from the radiation institute laboratory that was set up onsite. It was led by comrade Petrov who had arrived here earlier. Dollezhal Research and Development Institute of Power Engineering (NIKIET) led by comrade Egorov supplied us with most precise data on isotope composition and on the spread of radioactivity. Based on their data, we adopted one or another decision.

It was clear that in the first few days, because of the way air masses were flowing and because of the material drops in the reactor, the contamination was spreading with the dust.

[TAPE BREAK]

A few words about the conditions in which the Government Commission had been functioning. Some personal impressions of the time …

First and foremost I want to say that selecting Boris Eudokimovich Scherbina as the head of the Government Commission was . That is because he has a good habit of carefully listening to the specialists, quickly gasping their point, and be immediately ready to make decisions. He is not in any way timid or sluggish at making decisions. This was very clearly seen in such an exceptional situation.

I will mention only one example of his work. Following the complex calculations about lead, Alexandrov, for example, couldn't understand my reasoning for a long time, why that lead was needed. I tried to explain to him that there was no possibility of dropping iron shot because of the reasons I mentioned earlier. Because waiting for it to arrive would mean that we would have to stabilize the temperature on a much higher level when we wanted to do that on a lower level. According to my estimates, 200 tons of lead had been ordered but I immediately told Boris Eudokimovich that 200 tons won't solve any problems. We would need around 2000 tons of lead to be dropped into the crater of the reactor. He listened very carefully (I thought that it would be hard for the country to supply so much material in a matter of days) and as I got to know later, ordered 6000 tons of lead, because he thought that we could have made a mistake in our calculations and it would be better to have surplus lead instead of not having enough. This is only a specific example.

The station personnel was also surprising in a way. They left very conflicting impressions. I have already spoken about that. We met people that were ready to do any job in any circumstances. Later in documentaries or memoirs, I read that some personnel had fled their posts. But the situation was complex. Especially after the evacuation, many people didn't know where their children, mothers were, because people had been evacuated in all directions. Some stayed in the villages they were evacuated to, others immediately got tickets and went to their relatives. But where did they go? This was making things more complicated. Nevertheless, all the station workers from the ordinary up to the ministerial staff, were ready for the most rigorous and courageous, so to say, actions. But what

should those actions be? What did they need to do in such a situation? How should the work be planned and organised? From this perspective, there was no understanding of the steps that needed to be taken, neither from station personnel nor from the Ministry of Energy. And so I and the Government Commission had to take these decisions, come up with the action plan, get a clear understanding of the situation.

This confusion was seen even in small things. I remember the time when the Government Commission was still in Pripyat, we didn't have enough respirators, personal dosimeters called TLDs, and even somewhat reliable pencil dosimeters, that would show some measurements. There were not enough of these devices for everyone who were involved in the work. Moreover, many of them either hadn't been charged, or the people had not been instructed on how to use them and when to recharge them. This was quite unexpected.

We could only kick ourselves for not having external automatic dosimetry devices set up around the station, that would record the telemetry about radiation conditions within, say, 1 km, 2 km, 4 km and 10 km radius. So we had to send out a lot of people to assess the situation. There weren't any radio-controlled aircraft equipped with dosimetric devices. So we had to send a considerable number of helicopters to take the measurements and investigate. It's clear that a human is irreplaceable when one has to perform certain complex tasks like a cargo drop or some other operation involving large devices placed on a helicopter. But some simple, repetitive tasks could have been done by small crewless, radio-controlled aircrafts. This kind of equipment was not available at the time.

There were also issues with elementary culture. During the initial days in Pripyat, food was delivered: cucumbers, tomatoes, sausages, Pepsi-cola bottles, lemonades. All this was delivered to relatively dirty rooms, and was prepared for eating in the same place with bare hands. So even such a basic hygienic practice for eating was absent during the initial days. Later, after a few days, when the arrangements improved, proper dining tents were set up, proper sanitary and hygienic practices were put in place. Very basic, but it enabled keeping people's hands, and the food itself, safe from contamination.

During the initial days, all this hadn't been organized and this was shocking. These were some of the smaller issues.

The Government Commission worked from Pripyat for the first few days. The headquarters were in the City party committee building. If we could, we would sleep in a nearby hotel. After the evacuation was completed, the Commission was still in Pripyat for a couple of days, but after that moved to the regional party committee building in Chernobyl and as well as into a military camp. Soon after, the working quarters were organized. The living accomodations, however, were placed in the city of Ivankov, which was 50 km from Chernobyl. It was clear that during such migrations there was no command centre prepared from which it would be possible to organise the work in such difficult conditions. All of this had to be invented and organized on the spot, successfully or otherwise.

On the second or third day, I think, I offered to organise an information group within the Government Commission. I invited two or three experienced journalists to it. They had to gather the needed information about the medical, technical, radioactive situation from the specialists in a quantity they needed, be it full or partial, deal with imprecisions when we ourselves didn't have enough information. After that they would send it to TASS, to the television and the newspapers to

inform people about what was going on, what the situation was. This wasn't rejected, but as far as I know, even now no such information group has been created.