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FOREIGN AND COMMONWEALTH OFFICE

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DESPATCH

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**CHERNOBYL** 

1518

Her Majesty's Ambassador at Moscow to the Secretary of State for Foreign and Commonwealth Affairs

### SUMMARY

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Moscow 2 July 1986

Sir.

It is not yet possible to draw a line under the Chernobyl disaster. Its repercussions will be with us for years, perhaps decades. But it may be useful, now that the immediate crisis is over, to attempt a preliminary assessment of what happened, how the crisis was handled and to look at some

of the implications – internal political, economic and international. For the account which follows I am largely indebted to Mr Geoffrey Murrell, Counsellor at this Embassy.

2. The crisis was dogged by the lack of reliable information, which itself became a principal issue. It may therefore be useful to begin by briefly recapitulating the sequence of events on the basis of the information which has so far, in many cases belatedly, become available (and in which there are still many gaps). A detailed chronology is attached as an annex.

### What Happened?

3. At 01.23 am Saturday, 26 April, an explosion occurred at the fourth reactor of the Chernobyl nuclear power station, 112 km. north of Kiev. The explosion severely damaged the housing of the reactor and killed two power station workers (one died from blast injuries, the other from burns). The chain reaction stopped; but the graphite in the reactor core was on fire and a radioactive plume was emitted to a height of 700-1,000 metres. Firemen who arrived quickly at the scene were able to prevent the fire from spreading to the third reactor, adjacent to the fourth. They were exposed to severe radiation and many of them subsequently died.

#### Evacuation

- 4. On 26 April technical experts arrived from Moscow, followed by members of a government commission headed by a Deputy Chairman of the Council of Ministers, B E Shcherbina.
- 5. On Sunday, 27 April, rumours of an accident were circulating in Kiev but no announcement had been made. Automatic monitoring equipment in Finland and Sweden (probably also in Poland) had registered greatly increased levels of radioactivity. At 1400, some 36 hours after the explosion, evacuation of the population of about 25,000 of the town of Pripyat where the power station is located began and, it is claimed, was completed within two and a half hours. (Evacuation of the town of Chernobyl 18 kms from the power station did not begin until at least five days had passed). By the evening of the 27th over 100 seriously injured people, many of them probably emergency workers had been sent to Moscow for specialised hospital treatment.
- 6. On Monday, 28 April, at about 1600 local time, the Swedish Embassy was told by a senior official of the State Committee for the Supervision of Safety in the Atomic Energy Industry, in response to an enquiry, that there had been no nuclear accident in the USSR. At 2102 local time a Soviet official announcement reported an accident at Chernobyl. Three days had already elapsed since it occurred. The only details given were that one reactor had been damaged; measures were being taken "to eliminate the results of the accident and help the injured"; and a Government Commission had been set up. Twenty-four hours later a second announcement made the first public reference to radioactive emissions, referred to two deaths and the evacuation of populated areas in the vicinity of the power station. It appears from subsequent statements that at first the provision was for a 15 km evacuation zone; which extended to 30 km only on about 1 or 2 May. The total number of evacuees was eventually given as 92,000 (it probably exceeded this figure) and the evacuation was not completed until about 6 May.
- 7. Official announcements gradually released information about the number of injured. 197 had been hospitalised, 18 were in a serious condition. But the number of dead and severely hurt was to rise steadily in the coming weeks. By the end of June the declared death toll stood at 26.
- 8. On British Government advice, and in most cases at the insistence of their academic sponsors in the UK, British students left Kiev and Minsk on 30 April and arrived back in London on 1 May. Their swift evacuation, via Moscow, to London on a major Soviet public holiday, owed much to hard work and improvisation by my cultural, consular and Chancery staff; and to the

excellent cooperation of British Airways. Unofficial reports by now spoke of a situation approaching panic in Kiev and TASS eventually confirmed that long queues had formed at the railway station and at airline ticket offices; and that extra frains and aircraft had been provided.

- 9. At the reactor itself, a desperate battle was being waged by a hastily assembled team of experts and officials to extinguish the graphite fire and prevent further emissions of radioactivity. The principal method adopted was to drop sand, lead, boron and other materials on to the reactor by helicopter in order to smother the fire and contain the radioactivity. The longer-term strategy was to encase the entire reactor in concrete. This involved tunneling beneath the reactor to lay a new foundation and prevent the leakage of radioactive material from the core into the water-table. During the first week in May, there were conflicting reports about whether the graphite fire had been finally extinguished and what the temperature was in the damaged reactor. Soviet officials continued to maintain that the situation was under control and took the same line with the IAEA delegation led by its Director, Dr Bilix, which visited the USSR from 5-9 May and flew within 800 metres of the damaged reactor. But subsequent comments by Academician Velikhov, who appeared to be in command of operations at Chernobyl, made it clear that until about 9 or 10 May there was a serious danger of a further catastrophe, ie a "melt down" in which the molten core of the reactor could have penetrated its foundations and disappeared into the earth.
- 10. On 12 May *Pravda* published the 9th and last in a series of Council of Ministers' statements on the disaster. It spoke of extending work to decontaminate the power station and surrounding area, the continuing operation to entomb the reactor and reducing radiation levels in the Ukraine and Belorussia. This communique, the first to be published on the front page of *Pravda*, together with Gorbachev's television speech on 14 May the first time he or any Soviet leader had addressed the Soviet people about Chernobyl were evidently intended to mark the end of the crisis. Gorbachev declared that the worst was now over.
- 11. I will not attempt in this despatch to reach any conclusions about the accident. Various hypotheses have been put forward: shoddy construction work at the reactor (an article in a Ukrainian literary journal had drawn attention to this only a few weeks before the accident occurred); an unauthorised physics experiment; interference by the military seeking to step up the extraction of plutonium; a design fault in the reactor itself or a less dramatic failure of a key part of the equipment. There are conflicting reports as to whether similar reactors have been closed down. The Russians have not admitted to doing so and have announced plans to restart the first and second reactors at Chernobyl as early as this autumn. Fuller information will presumably become available in due course, for example in the resport on the accident which the Russians have promised to the IAEA. It would be pointless to speculate meanwhile.

### How Did the Soviet Authorities Cope?

12. The Soviet response to the disaster appears to have been slow and confused. Soviet spokesmen have admitted that a correct assessment of the situation was not made initially, implying that the nature and seriousness of the accident was not understood or communicated to higher authority in good time. In mitigation it could be argued that the event was unprecedented and that diagnosis of the problem, as of its possible consequences, may indeed have been very difficult, especially in the highly dangerous conditions at the power station. But there can be little doubt that there was a failure of communication all too characteristic of the Soviet system. Officials at every level are reluctant to report failures and problems objectively and quickly, if they can possibly avoid it, for fear that they will have to take responsibility for what has gone wrong. Since the officials control all channels of information they can hope to escape the consequences. There must be a strong suspicion that officials at Chernobyl and in Kiev at first concealed or delayed information about the accident in the hope that they could cope and so avoid political intervention from Moscow. So far the only officials to have been publicly blamed are the former Director and Chief Engineer of the Power Station, for irresponsibility and incompetence in handling the aftermath of the accident.

- 13. Another factor in the inept initial response was bureaucratic rigidity and the problem of "departmental barriers". The crisis at the reactor itself and its wider implication inevitably involved many Ministries, institutions and organisations. No one organisation appears to have had overall authority (there is a State Committee for the Supervision of Safety in the Atomic Energy Industry, which was set up only three years ago; but it appears to have played virtually no role and has barely been mentioned in the press in connection with Chernobyl). There were clearly no emergency procedures in place for handling the crisis; and coordination was evidently a severe problem. Initial decisions were probably made without adequate consultation, by Party officials with an imperfect understanding of the situation. There is no way of knowing whether, if there had been no delay in assessing the scale of the accident, it could have been brought under control more quickly and radiation emissions reduced. But it is clear that there were severe consequences in the belated evacuation, with possibly avoidable damage to the health of tens of thousands of people; and in contributing to the information vacuum which has generated so much international ill-will.
- 14. The setting up of the Government Commission was announced only at 2100 hours on 28 April, nearly 70 hours after the accident had occurred, though the Commission was apparently functioning and at the site earlier. The despatch of Prime Minister Ryzhkov and Senior Party Secretary Ligachev to the area on 2 May, when they decided on unspecified "additional measures", suggested that the Politburo was not content with the way the situation was being handled a week after the disaster. According to Gorbachev's speech of 14 May, a special group within the Politburo, under Ryzhkov, was set up at some point, Gorbachev claimed that the Politburo had taken the management of the crisis into its own hands but there was little evidence of this. The Politburo has been reported as discussing Chernobyl on several occasions at its weekly meetings since the disaster occurred but their decisions have been largely concerned with administrative arrangements to ease the lot of the evacuees. Six weeks after the disaster no other Politburo member, apart from Gorbachev himself, had made any public reference to Chernobyl and only Ryzhkov, Ligachev and Shcherbitsky (who received no photographic or television coverage) had ventured anywhere near the area.
- 15. Judging by Soviet media coverage and the reported impression of the IAEA delegation which visited Moscow and Chernobyl from 5-9 May, the Soviet authorities eventually succeeded in assembling a team of competent experts and officials who have been working efficiently to bring the situation at the power station under control. Under pressure of the emergency the bureaucratic habits and departmental barriers seem to have been quickly overcome. We have little evidence to judge how well the evacuation of the population of the area was organised. The Soviet press sought to create the impression that it was a calm, orderly and efficient process, although there have been occasional cirticisms of individual officials, including Party officials who deserted their posts or neglected their subordinates, as well as stories of families still separated weeks after the evacuation and hints of predictable problems encountered with the population of villages and towns where they have been hastily billetted.
- 16. The Soviet media coverage has been replete with images of the battle front and there has been a deliberate effort to mobilise public sympathy and solidarity in analsmost wartime atmosphere, with emphasis on the unity of the Soviet nations and even publicity for workers reported to have requested immediate admission to the Party so that they could go to Chernobyl "as Communists" just as, allegedly, Soviet soldiers did at the front in the Second World War. The régime's reactions have changed little since then and other war-time parallels suggest themselves. For example, the initial confusion and disarray followed by recovery, rallying of the population and the generation of enormous efforts; and also the initial silence of the leadership. Stalin took, however, only ten days before he addressed the people after the Nazi invasion, while it was eighteen days after the accident before Gorbachev spoke to the Soviet people about Chernobyl.

After the period of initial confusion, the Soviet authorities appear to have recovered their 17. balance; and to have dealt more efficiently with the practical problems on the ground. After an uncertain start, they began to present a more reasonable and cooperative line towards the international community. There was a notable contrast between the panicky summoning of selected Western Ambassadors, during the evening and night of 30 April/1 May, to receive from Soviet Ministers assurances that all was well: and the more measured and rational briefing of a wider selection of Western Ambassadors by energy supremo Shcherbina on 13 May. The first occasion was characterised by almost desperate ingratiation and downright mendacity; when I asked Academician Petrosyants, Chairman of the State Committee on the Use of Atomic Energy, whether the fire in the Chernobyl reactor had been extingished, he replied that it had. It subsequently emerged from official Soviet sources not only that the graphite core had still been burning fiercely at the time of Petrosyants' statement but that melt-down was then, and remained for several days, an imminent possibility. On the second occasion, although Shcherbina and his briefing team still indulged in a fair degree of equivocation, the emphasis was on facts rather than propaganda: and, as I commented at the time (Moscow telegram number 575) the briefing did represent a small step towards more sensible and civilised behaviour. A relatively candid briefing of Western envoys about a domestic disaster would certainly have been inconveivable under any previous Soviet leadership. Gorbachev subsequently announced, in his television speech of 14 May, Soviet proposals for international agreements on closer cooperation on nuclear power safety, notification of accidents and mutual help in dangerous situations. It is of course hypocritical for the Soviet leadership to appear to take the lead in such matters: but the belated adoption of a more responsible Soviet attitude would be a positive outcome from Chernobyl.

### Information and Propaganda

- 18. The handling of information and propaganda by the Soviet authorities is one of the most significant aspects of the crisis and has rightly attracted a great deal of comment. A readiness on the part of the régime to be more frank and open is crucial both to any prospect for the liberalisation of Soviet society and to the generation of greater trust in East-West relations. Chernobyl provided a harsh test of Soviet progress in this area and the result was, for the most part, disappointing.
- 19. The initial attempted cover-up can be excused in part by the fact that the situation was confused and unprecedented. The Soviet authorities may have feared that an early announcement would cause panic. Nearly 70 hours of silence before the first announcement were followed by a week of terse official communiques in which information about the nature of the accident and the first casualties was gradually released in small doses. It was only then that Soviet media coverage began to build up: partly, perhaps, in response to the sensational reports which were by then appearing in the Western media, partly to allay anxiety and to counter rumours among the Soviet population generated by lack of information from their own authorities, and reports filtering through from abroad of the widespread precautions taken in other countries. Eventually, the coverage achieved unprecedented proportions, with detailed eye-witness accounts from the area of the accident; television film of the damaged ractor: "human interest" accounts of the courage of the injured firemen who fought the initial blaze at terrible cost (and moving TV shots of some of them in hospital); dramatic interviews with members of the Government Commission at the scene; descriptions of the stoicism of evacuees and the generosity of those who sheltered them; and increasing details about the measures eventually taken to check radiation levels in food and water.
- 20. For domestic consumption, the accent was naturally on the positive the courage and skill of those fighting to control the reactor, the vital role of the Party, the Armed Forces and the MVD, the generous nationwide response of the Soviet people; but there was also some criticism of failures of organisation during the evacuation and disclosures that officials, including Party officials, had deserted their posts or neglected their subordinates. It was however still a question of larger but carefully prescribed doses of information from which some vital ingredients were missing: there was no consistent information about radiation levels, casualty figures were fudged and the rising death-toll reported very belatedly; the vital question of the timing of the evacuation was left obscure.

- 21. The eventual release of a much larger volume of information about the accident and its consequences was accompanied by a strident counter-propaganda offensive aimed at both domestic and foreign opinion. The main elements in that campaign, in the order in which they made their appearance, were:
  - (a) the assiduous reporting of past and current nuclear power accidents or incidents in the West which had allegedly been covered up at the time: Windscale in 1957 and Three Mile Island in 1979 featured prominently in the list of thousands of "catastrophes" in the West to which the Chernobyl "accident" became a modest addendum.
  - (b) Allegations that Chernobyl had been made the pretext for an anti-Soviet campaign in the West which, far from showing sympathy, was in the main taking malicious pleasure in Soviet misfortune. (There were some positive notes: the medical assistance rendered by Dr Robert Gale and his team was acknowledged and one lone senior Soviet commentator, in the Government newspaper, *Izvestiya*, actually commended *inter alios* Western ruling circles for their sympathetic response).
  - (c) The exploitation of the increased anxieties about nuclear radiation which Chernobyl had aroused, in order to boost the anti-nuclear movement and Soviet Test Ban and Arms Control proposals.
- 22. For all its crudity, the Soviet counter-propaganda campaign has probably been successful in its primary purpose of deflecting the anxieties and resentment of the Soviet public away from their own régime and towards the foreigners alleged to be rejoicing in the Soviet humiliation. The notorious Soviet inferiority complex is real enough; and the Soviet public has responded all too readily to the official line. Nor should we underestimate the effects of the heightened awareness of the dangers of radiation following Chernobyl on Western public susceptibility to Soviet nuclear disarmament propaganda.
- 23. In several respects, however, the propaganda campaign badly misfired. The initial delay in providing information probably helped to prevent panic; but when information was finally released, it tended to confirm earlier Western reports which the Soviet media was trying to discredit and therefore stimulated instead of allaying public anxieties. At the same time, the daily cataglogue of nuclear power station accidents in the West (compiled by courtesy of the Western media) was clearly at cross-purposes with the Soviet concern to reassure the Soviet public about the safety of its own nuclear power programme, which is scheduled to provide 21% of all electricity generated in the Soviet Union by 1990.
- 24. All in all, I suspect that if the wind had been blowing in the opposite direction on the weekend of 26-28 April, the official Soviet silence would have lasted for weeks, or even for ever; and that we would have had only rumours and satellite photographs to tell us that a serious accident had occurred at Chernobyl. Soviet information policy and performance were painfully reminiscent of the affair of the shooting down of the KAL airliner in 1983. First, the direct lie there had been no accident; then the gradual and grudging release of minimal and often misleading information, followed eventually by a mass of detail, much of it irrelevant, accompanied by strident counterpropaganda about an anti-Soviet campaign in the West. In this case the propagandists could not blame the CIA for having organised the accident, but they did allege that Western officials and media had taken malicious pleasure in Soviet misfortune and had exploited it to try to discredit the Soviet Union and its peace and disarmament proposals. At least one newspaper commentary brazenly compared the two incidents as examples of Western falsehoods.

#### International Reactions

- 26. The Soviet leadership have only themselves to blame for the fact that the natural sympathy which the disaster aroused abroad was overlaid, especially at first, by much anger and criticism at the inadequate and belated information they provided about it. It must have seemed an endless nightmare for Soviet propagandists as the radiocative cloud from Chernobyl visited country after country, eventually reaching as far as Japan and Australia, and country after country announced high radiation levels and took appropriate precautionary measures. All this served to reinforce Soviet paranoia: the inevitable response intensified Soviet counter-propaganda and further damaged the international atmosphere.
- 27. The countries most affected were Sweden, the first to detect and announce the accident, where the Soviet image will have taken yet another dent, and ironically enough the Soviet Union's East European allies, especially Poland. All of them in turn recorded increased readioactivity; and with varying degrees of reluctance and tact publicised the fact and announced precautions relating to the sale and consumption of milk and fresh vegetables. Poland, which lay directly in the path of the radiation cloud and was the most seriously affected, must have caused the Soviet régime some embarrassment by announcing precautionary measures at a time when the Soviet authorities had still said nothing to its own population about potential health risks. Chernobyl not only raised by several notches the level of popular dislike of the Soviet Union in Eastern Europe, but inflicted significant economic damage on the regimes themselves when they fell victim, despite the absence of scientific justification, to the EC ban on food imports introduced on 7 May. It does not appear that the East European allies were given any privileged information about Chernobyl: indeed, when it came to the briefing of Ambassadors in Moscow the East Europeans took their turn after the Western Ambassadors and were briefed at a lower level.
- 28. The United Kingdom did not escape the political fall-out from Chernobyl. The Russians chose to represent the rapid evacuation of our students and teachers from Kiev and Minsk as a "demonstrative" anti-Soviet gesture and extensively publicised and denigrated the radiation checks which they were given on leaving Moscow and arriving in London on 1 May. Within a few days they gave the lie to their own propaganda by admitting that Soviet citizens were leaving Kiev in large numbers and their children were being evacuated from the city (thus confirming that the decision to remove British subjects was correct and timely).
- 29. A regrettable and totally unnecessary casualty of the nervous and confused atmosphere in the first post-Chernobyl week was the cancellation of the whole of the visit of the London Festival Ballet which had been due to tour Moscow, Leningrad and Vilnius from 6 May. The irrational decision of the members of the company themselves, despite the advice of the FCO and their own management and union, deprived us of what would have been the most important British cultural event in the Soviet Union for many years. It also further fuelled Soviet resentment against the UK,

by now designated in the media as principal pack-leader, after the US, in the "anti Soviet campaign". But there were some positive aspects of the crisis for Anglo-Soviet relations. The modest technical assistance which we were able to offer and deliver — hot suits, other protective clothing and breathing equipment — and the confidential report on the 1957 Windscale accident which I handed over within a few days of the Chernobyl disaster were, though not publicly acknowledged, genuinely appreciated.

- 30. It was regrettable but perhaps inevitable that Chernobyl should have become an issue and an irritant in East/West relations rather than a stimulus to greater understanding and sympathy. The atmosphere was bedevilled from the start by Soviet secretiveness and instinctive tendency to regard any set-back as a defeat in the East-West struggle and to assume that the West would see it in the same light. The statement on Chernobyl issued on 5 May by the Tokyo Summit meeting, which combined expressions of sympathy and offers of help with criticism of the lack of information, was condemned by Gorbachev in his television address of 14 May with what seemed to be genuine anger. The medical assistance provided by Dr Gale and his team was publicised but represented as isolated and untypical and invariably linked to the efforts of the eternal and egregious Dr Armand Hammer, the *eminence rose* of US/Soviet relations.
- 31. The Russians have a legitimate grievance against some of the Western media coverage. The early UPI report of 2,000 dead was irresponsible and the New York Post's report of bodies being shovelled into a mass grave a disgraceful example of yellow journalism at its worst. But there was of course no anti-Soviet campaign; and for Soviet propaganda to have depicted the Western official and public response as vindictive and hypocritical, in contrast to the sincerely sympathetic Soviet response to the Challenger disaster, was both cynical and insulting.

### Reactions of the Soviet Public

- 32. It is always difficult to predict or to gauge the Soviet public response to a crisis. The first reactions appear to have been complacent and sluggish. Soviet public opinion has not been conditioned by an anti-nuclear lobby (nor, apparently, by official propaganda on civil defence) to a very high level of awareness of the dangers of radiation. Citizens in Pripyat' and Chernobyl had apparently to be persuaded of the need for evacuation; and British students leaving Kiev on 30 April encountered some mockery from their Soviet colleagues. But this early complacency soon gave way to considerable, sometimes exaggerated, alarm, stimulated by traditional hypochronida and the rapid spread of rumours, feeding an official silence and growing awareness of reactions abroad. There does not seem to have been panic on a serious scale among the public at large but the level of public alarm grew even as the reasons for it receded and official reassurances, when they eventually came, were not believed. The Soviet media was obliged to try to squash opportunist rumours about the healing properties against readiation of dry wine and vodka; as well as tales of the closure of all Black Sea resorts and the contamination of Kiev's water supply.
- 33. In the short term, public reactions have not caused serious problems for the Soviet regime the only significant protests and demonstrations against nuclear power as a result of Chernobyl took place in Western and Eastern Europe but I should be surprised if we do not now see the beginnings of an anti-nuclear lobby in the Soviet Union, albeit less powerful and vocal than elsewhere. Environmental issues arouse strong feelings here, as the continuing debate on the Northern Rivers scheme has shown. The advisability of siting nuclear power stations near large cities was once questioned in the Party press (in 1979) and *Pravda* has recently referred to, though not published, letters from readers opposing nuclear power as a result of Chernobyl.

## The Soviet Leadership

34. Gorbachev's image abroad has been somewhat tarnished by Soviet secretiveness over Chernobyl but it is unlikely that the disaster has affected his position in the Soviet leadership or caused significant internal political problems. The Soviet response was traditional and familiar and will not have attracted much criticism among Party officials, most of whom are in any case uncomfortable with the new policy of "openness". Some Party and Government officials will in due course take part of the blame for the mistakes which were made and it is possible that the disaster may help to undermine the position of the Ukrainian Party leader Shcherbitsky, whom Gorbachev would like to oust for other reasons. But the political fall-out from Chernobyl will be very limited in this closed society.

### **Economic Consequences**

35. The economic consequences for the Soviet Union are the subject of a separate study in Whitehall and I shall not attempt to analyse them in detail here. The main point, I think, is that neither the short-term or the long-term impact of Chernobyl on the Soviet economy is likely to be very significant. Contamination of land and produce will lead to some loss of grain and vegetables but the effects will be limited and transitory. The loss of one reactor and temporary closure of others at Chernobyl, and possibly elsewhere, has reduced electricity generating capacity but not sufficiently to cause serious problems for Soviet industry. The longer-term effect could be significant if the RBMK reactors are found to have a design fault. The introduction of new safety measures will in any case almost certainly slow down the construction programme for nuclear reactors which were scheduled to provide 21% of Soviet electric power by 1990 although the final version of the Five Year Plan formally adopted in June left this target unaltered. With at least 100,000 people potentially at risk from the long-term effects of radiation, the demographic effects could be of some significance. But at this stage it is impossible to quantify them. Soviet exports of food and power may be affected to a small extent and oil diverted to domestic use to make up for loss of power generating capacity. Ironically, the economic fall-out from Chernobyl may cause more short and long-term damage to other countries than to the Soviet Union. Some of the East Europeans were hit hard by the temporary EC ban on food imports; and in the longer term the nuclear energy industry in democratic European countries will be under severe public pressure.

#### Have the Russians Learned Anything?

36. Presumably the Soviet authorities have learned some practical lessons from whatever technical, human or organisational failures led to the disaster and contributed to their initially poor performance in dealing with its consequences. Some of their problems, including practical, physchological and organisational unpreparedness, would probably have faced any other country in such an unprecedented crisis. Others can perhaps be attributed to endemic flaws in the Soviet system, notably the incompetence and lack of initiative shown by some local officials, starting with the management of the power station itself, which are probably in large measure due to a system in which officials are accustomed to operate by rote and follow orders from the centre. The clumsiness and rigidity of the Soviet bureaucracy makes it a very inflexible instrument for responding to an emergency in which the work of many different organisations and institutions has to be coordinated. We must hope that the Soviet authorities have learned something from the international and domestic reactions to the lack of adequate and timely information during the crisis. There was no hint of apology from Gorbachev in his television address of 14 May, but occasional critical comments have begun to appear in the Soviet press. In his speech at the June Central Committee Plenum Gorbachev seemed to be alluding to Chernobyl when he asserted that recent events had convincingly confirmed the "lesson of truth" which had been discussed at the Congress, namely that the Party and people need the whole truth; and that lies and half-truths corrupt thought and personality and make it impossible to reach realistic

#### What are The Lessons For Us?

- 37. The Chernobyl experience will add to international knowledge of the potential dangers of nuclear power and techniques for dealing with a serious accident and the medical consequences of a major leakage of radiation. It has underlined the need for improved procedures for international notification and cooperation in the event of accidents. New agreements, procedures, safety measures are already being discussed and will form part of the useful legacy of Chernobyl. Chernobyl has brought home very sharply the extent of both public ignorance and hyper-sensitivity about radiation. It has revealed a clear need to educate the public on nuclear matters if we are to sustain policies of nuclear defence and nuclear energy. It is an unpalatable fact that Chernobyl has fostered widespread suspicion of the nuclear industry and that the anti-nuclear lobby has received a significant boost which, ironically, is likely to have its main effects in the West rather than in the Soviet Union.
- 38. I am sending copies of this despatch to HM Ambassadors in Eastern European posts; in Washington, Paris and Bonn; and to HM Permanent Representatives to the European Community; to the North Atlantic Treaty Organisation and to the International Atomic Energy Agency in Vienna.

I am, Sir Yours faithfully

**BRYAN CARTLEDGE** 

# CHERNOBYL CHRONOLOGY

The Chronology below is arranged in two complementary parts. The left hand column deals with events at the Chernobyl site, and facts immediately relevant, eg. deaths and injury figures, and radiation readings. It also contains details of other events taking place locally, eg. visits to Kiev. The right hand column deals with events at greater distance, especially in Moscow, and abroad.

A list of the major Soviet officials involved in the crisis and mentioned in the Chronology is attached at the end, for reference.

#### CHERNOBYL CHRONOLOGY

### 26 APRIL SATURDAY

- 01.23 Explosion in Reactor 4, which was undergoing planned maintenance shutdown, at 7% power.
- Damage to housing of reactor.
- Chain reaction stopped.
- Emission of radioactivity. Plume went 700m-1000m high (Semenov to IAEA, 22/5).
- Two site workers died in the explosion (one from blast injuries, one from 80% burns Shcherbina at 6/5 Press Conference).
- Maximum radioactivity level within the 30KM zone was reached on 26/4 and was 15mR/hr (Shcherbina at Press Conference 6/5).
  - Government Commission started work on day of accident (Semenov to IAEA, reported in *The Guardian* 20/5).
- First team of specialists down to the site on 26/4, followed by Government Commission (no time given). (Legasov interview in *Pravda* 2/6).

#### 27 APRIL SUNDAY

14.00 Evacuation of Pripyat begins (Izvestia 7/5) and takes two and three-quarter hours (Soviet TV 13/6).

Pripyat has 25000 inhabitants, according to *Pravda* 5/6 and Izvestia 7/5. *Izvestia* 6/5 referred to 'about 40000' in Pripyat.

# 27 APRIL SUNDAY (continued)

Rumours circulating in Kiev about an accident.

(Evening) Over 100 people to Moscow for specialised treatment.
(Shcherbina Press Conference 6/5).

(27 or 28/4) Soviet video of reactor site made, and copy later promised to IAEA by Petrosyants and Semenov (Soviet Representative IAEA). Raised levels of radioactivity detected in Finland and Sweden by automatic monitoring equipment.

# 28 APRIL MONDAY

21.00 First Council of Ministers' announcement issued by TASS, and read on *Vremva*.

Accident at Chernobyl AES, one reactor damaged.

 Measures to 'liquidate results of the accident'. Help for those injured.

Government Commission set up.

Background radiation in Minsk raised on 28 April only (as admitted by Belorussian Health Minister in interview, Sovietskaya Belorussia 22/5).

Swedish Embassy in Moscow approaches the State Committee for Supervision of Safety in the Atomic Energy Industry, and are told that no nuclear accident had occurred in the USSR

#### 29 APRIL TUESDAY

<u>First</u> Council of Ministers' accouncement (see 28/4) published in *Izvestia* only.

21.00 <u>Second Council of Ministers'</u> accouncement, main points:

Shcherbina heads the Commission working on the accident.

Russians approach Sweden and FRG for advice on fighting graphite fire.

US request for Scientific Counsellor in Moscow to see State Committee for Utilisation of Atomic Energy refused, but call on State Committee for Safety in Nuclear Industry agreed.

### 29 APRIL TUESDAY (continued)

- First mention of radioactive emissions.
- Radioactivity 'stabilised' at the site and surrounding area.
- Two people died in accident.
- Inhabitants of the 'poselok' of the AES and three adjacent populated areas (naselennye punkty) evacuated.

### 30 APRIL WEDNESDAY

- 21.00 Third Council of Ministers' announcement.
- Decrease in radioactive emissions.
- Decrease in levels of radioactivity.
- No chain reaction taking place.
- Reactor has been 'smothered'.
- First reference to 197 people hospitalised, of whom 49 left after examination.

V P Suslov (see right hand column) states that radioactive emissions went in north, west and southerly directions.

Petrosyants (see right hand column) states that the fire in the reactor is out.

Zamyatin calls on Prime Minister in London.

Soviet Civil Aviation official in Washington states that less than 100 people were injured.

Soviet Embassy in Washington gives 'information' on the accident to State Department (but it revealed no more than TASS).

HMA calls in the afternoon on V P Suslov, Second European Department, to deliver first set of UK questions.

Formal request from the Twelve to Protocol Department of MFA for full information without delay.

Evening Meetings in MFA with Kovalev, Petrosyants and Yagodin, and Western Ambassadors. HMA's call at 20.00

Radiation reaches Hungary.

Minsk and Vilnius radiation levels now .004mR/hr (MFA information to Ambassadors, see above).

British students leave Kiev and Minsk for Moscow overnight.

### 1 MAY THURSDAY

	16.00	TASS	statement	issued.
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- Decontamination of areas adjacent to reactor in progress.
- Radiation levels down 'by 1½-2 times'.
- 18 people in a serious condition.

According to TV news filmed interview with Kiev bus driver (broadcast 5/5), the evacuation still continued on 1/5.

Evacuation from Moscow to UK of British students after tests for radioactivity. British Embassy statement on the situation.

Informal request to UK from Soviet Representative in IAEA (Vienna) for heat resistant suits.

Statement to United Nations by Ukrainian representative and USSR representative (Dubinin).

### 2 MAY FRIDAY

Visit to area by Ryzhkov and Ligachev. Shcherbitsky, Shcherbina, Lyashko (Chairman of Council of Ministers, Ukraine), and Revenko (1st Secretary Kiev Obkom) in attendance. 'Additional measures' adopted.

No Council of Ministers' statement.

Unofficial comment from Kiev that 'total panic' reigned in the city, people leaving in droves. Long queues at air and rail ticket offices.

TV news film of students returning from Kiev.

Radiation (cloud-borne) reaches South-Eastern England.

### 3 MAY SATURDAY

No Council of Ministers' statement.

Eltsin: additional information:-

- 49000 evacuated.
- Accident due to human error.
- 30KM exclusion zone established (see 5 May).
- Some 200 in hospital, 20-25 critical, plus 40 with serious radiation injuries.

Eltsin's speech in Hamburg, giving more information (not published in *Pravda*).

Izvestia carries 2 short reports of nuclear accidents in the West.

# 4 MAY SUNDAY

TASS 'authorised' statement.

First film coverage by *Vremya* (TV news) of stricken site and area.

# 5 MAY MONDAY

Fourth Council of Ministers' announcement (published in *Pravda* 6/5).

- Emission of radioactivity is dropping.
- Walling of banks of River
   Pripyat against possible contamination.
- Radiation in Ukraine and Belorussia 'stabilising with a tendency to improvement'.
- First official reference to 30KM zone.
- Necessary 'sanitary-hygienic and curative-prophylactic measures' being taken.

According to Blix (at 9/5 Press Conference) radiation in 30KM zone down to 2 to 3mR/hr on 5 May.

#### 6 MAY TUESDAY

First *Pravda* feature on Chernobyl (back page), including first public reference to <u>date</u> of accident in Soviet media.

(this date?)
Ukrainian Health Minister states on local TV that there is no immediate health-hazard to Kiev and Kiev Oblast.

Dr Robert Gale arrives in Moscow.

Pravda article 'Unreasonable Zeal' signed by V Bolshakov, attacking Western attidues to the accident.

Blix (IAEA) arrives in Moscow.

HMA calls on Komplektov, hands over details of Windscale accident.

Tokyo Summit statement on Chernobyl.

Pravda piece on Dungeness accident.

Further *Izvestia* pieces on nuclear accidents in the West.

Scheduled start of London Festival Ballet tour, called off.

Blix talks with Kovalev (1st Deputy MFA) and with Petrosyants, 1st Deputy Health Minister Vorobiev, 1st Deputy Chairman State Committee for Hydrometeorology Sedunov.

# 6 MAY TUESDAY (continued)

Shcherbina press conference:-

- Poland and Romania had had raised radioactivity levels. These had not gone above safety levels, and were now dropping.
- Local authorities had failed to make proper assessment of the situation.
- 204 total in hospital.
- Maximum radiation level of 15mR/hr at Chernobyl now down by 2-3 times.
- Moldavia named among affected
   Republics for the first time.

Izvestia feature (first one) on Chernobyl. Revenko (1st Secretary Kiev Obkom) refers to enlargement of evacuation zone from 15KM to 30KM 'as you know'. Shcherbina and panel hold press conference (see opposite).

Sturua article in *Izvestia* on US response to Chernobyl.

# 7 MAY WEDNESDAY

22.00 Fifth Council of Ministers' statement (in press 8/5).

- Radiation levels continue to improve.
- Radiation <u>outside</u> immediate zone of reactor had risen, but no danger to health.

TASS story 'Truth and Untruth About Chernobyl' reproduced in several central daily papers (not *Pravda* and *Izvestia*).

Sovietskaya Rossiya separate reportage piece.

# Bliz talks continue (see 6/5).

Approach of Soviet Embassy in London to Department of Energy taking up Mr Peter Walker's offer of protective suits.

#### 8 MAY THURSDAY

Trip by Western journalists to Ukraine. Briefing by Chairman of Council of Ministers Lyashko. At Politburo meeting today (reported in press on 9/5), first discussion of Chernobyl, fourth item in the communique.

# 8 MAY THURSDAY (continued)

- Fire in reactor is out. (As reported in official press. According to journalists, he said 'almost out').
- Temperature down to 300°C (not in press).
- 84000 evacuees (not in press).

*Pravda* account of sand, lead, boron etc being dropped onto reactor. Velikhov quoted: concreting in progress <u>under</u> the reactor. 'Defence in depth'.

Visit to site by Blix, who flew over the reactor.

A little smoke still emerging, much activity to contain the reactor, and keep it under constant kontrol (Soviet TV).

9 MAY FRIDAY

Soviet statement to IAEA: Fire is out.

Sixth Council of Ministers' statement:

- Work continuing.
- Intensive cooling to lower temperature.
- Sharp reduction in emission of radioactivity.
- Reactors 1, 2 and 3 normal.

Blix press conference:-

- Up to 50% of emissions were Iodine
   131.
- 204 people irradiated in 1st-4th degrees,
   18 of them 4th degree.
- Graphite fire out.
- 'Little' radioactive release now going on.
- Temperature still well <u>above 300°</u> but well below melting point.

(Today?) A Second Secretary, Soviet Embassy Bonn contacts Deutsches Atomforum for information on how to fight a core fire.

Kondrashov article in *Izvestia* on attitudes abroad takes conciliatory line.

Blix press conference in Moscow (see opposite).

# 9 MAY FRIDAY (continued)

Blix leaves Moscow for Vienna.

Izvestia interview with fireman.

Gventsadze (Charge) summoned by Mr Tim Eggar in London to hear complaint about lack of information. Two specific questions put to him:

- a) Soviet assessment of possibility of meltdown.
- b) Possibility of further airborne discharges.

10 MAY SATURDAY

Seventh Council of Ministers' statement (in press 11/5).

- Temperature 'down substantially', which 'according to specialists testifies to the practical cessation of burning of graphite in the reactor'.
- Sharp decrease in radioactive emissions.
- Radioactivity levels given:

  60KM from AES:- 0.33mR/hr
  Kiev :- 0.32mR/hr
  (no danger to health)
  on Western border of Soviet
  Union :- within natural
  background.

In *Pravda*, Maslennikov article 'Unworthy Attitudes' attacking Western hypocrisy, quoting *Observer* article on Windscale, and reporting Dungeness incident.

Blix press conference at Vienna Airport.

### 11 MAY SUNDAY

Eighth Council of Ministers' statement:

- Continuation of decontamination of the site, buildings and transport.
- Preparations for decontamination of housing.

### 11 MAY SUNDAY (continued)

- Preparatory work for concreting of reactor.
- Radiation on Western borders normal.
- Radiation levels in Ukraine and Belorussia 'remain as before'.

Velikhov quoted in Izvestia reportage article:

- Possibility until today of a further catastrophe, but now over.
- Nearly 92000 people evacuated.
- Radiation safety <u>norms</u> in Soviet
   Union:-

5 Roentgen/hr for AES site workers 0.5 " for inhabitants of nearby areas.

### 12 MAY MONDAY

Ninth Council of Ministers' statement (published *Pravda* 13/5 on the front page):

- Decontamination work extended.
- Concreting continues.
- Radiation levels in Ukraine and Belorussia improving.
- 6 dead from burns and radiation.
  35 in serious condition.

Pravda back page article and new photograph.

Sharp criticism and sanctions on local party secretaries for failing to take proper measures to help evacuees.

### 13 MAY TUESDAY

Pravda back page articles, and Sovietskaya Rossiya article:

Head of Chancery call on Uspensky (Second European Department, MFA), reminder about outstanding UK questions. Promise of early full replies.

Blix briefing in Vienna for Diplomatic. Missions.

Krivopalov article in *Izvestia* about BBC 'Breakfast Time' coverage of Chernobyl and students' evacuation.

Zamyatin calls on Secretary of State, hands over statement on Chernobyl. (No new points.)

# 13 MAY TUESDAY (continued)

Velikhov and Silaev comment that main danger is past (Velikhov): "10 days after explosion, there was still threat of a disaster but now over. Today has brought breakthrough".

Shcherbina briefing:

- Temperature now 300-400°C.
- Details of work to wall round and under reactor.
- Radiation: in Chernobyl area now at 0.24mR/hr, in Kiev now at 0.22mR/hr.
- Isotope composition of radioactivity given.
- Report on the accident to be submitted to the IAEA in July.

'By 13 May the reactor had already practically stopped emitting fission products into the atmosphere.' (Deputy Chairman of State Committee for Use of Atomic Energy Semenov, in *Literaturnaya Gazeta*, 11 June).

#### 14 MAY WEDNESDAY

Gorbachev on TV:

- 299 in hospital.
- 7 had died (= death toll of 9).
- Entension of test moratorium to 6/8.

No Pravda article.

FCO advice to travellers updated.

Urgent approach from Soviet Trade delegation in USA to a Pennsylvania chemical company, for fire fighting chemical. Admission that temperature inside the reactor had reached 600°C.

Briefing by Shcherbina for Western Ambassadors (see opposite).

Gorbachev TV broadcast (see opposite).

White House reply to Gorbachev's speech, late on 14/5.

Sobiet approach to US via IAEA for urgent information on behaviour of nuclear fuel in meltdown.

### 15 MAY THURSDAY

Dr Gale:-

299 irradiated and in hospital.

- 239 madated and in nospital.
- 35 received the highest radiation levels.
- 19 of these had bone marrow transplants.
- More fatalities were inevitable.

Dr Gale press conference (see opposite).

Izvestia interview with Dr Gale.

Gorbachev meeting with Dr Gale.

Politburo meeting held (report published 16/5). No mention of Chernobyl.

### 16 MAY FRIDAY

*Pravda* article on role of Communists in the crisis.

MFA invitation issued to Heads of Mission in Moscow to travel to Chernobyl on 21 May. Declined by HMA after consultation with EC colleagues.

Pravda Ukrainy 16/5 interview with Academician (Medical Sciences) Ilin, who repeated Soviet Union safety norms for radiation. Indentification of Velikhov as member of the Commission.

Politburo communique published. See 15/5.

# 17 MAY SATURDAY

Pravda leader on Chernobyl, and page 3 reportage.

In Gomel (Belorussia), 5 huge enterprises in Braginsk raion had been evacuated.

Silaev interview on Vremya (evening TV news):

- Temperature down to 200-250°C.
- Radiation in Kiev 0.3mR/hr.

*Izvestia* prints letters from people offering money for the disaster fund.

### 18 MAY SUNDAY

Pravda article acknowledging that information on the accident had been 'sometimes belated'. Attacked the West once again: "We cannot forgive those who warm their hands on a neighbour's fire".

Izvestia report with pictures of 6 firemen who died.

### 19 MAY MONDAY

Shcherbitsky and Lyashko (Chairman of Council of Ministers) visits evacuation raiony (*Pravda* 20/5, not reported in central press).

Izvestia references to Slyunkov visiting affected areas [in Belorussia-implied] several times a week.

26000 evacuated from the Gomel (Belorussian) sector of the zone.

Head of Chancery call on Uspensky, further reminder about outstanding questions. Uspensky asserted that the Gorbachev statement and Shcherbina briefing (13/5) had obviated these questions.

### 20 MAY TUESDAY

#### Izvestia article

- L A Voronin has replaced Silaev in the Government Commission.
- Temperature in the reactor 'about 200°C'.
- Minimal emission of aerosol particles.
- Programme of work drawn up till
   15 June (entombing reactor, preparation of the 3 (sic) undamaged reactors for work, decontamination of the site and 30KM zone.
- Radioactive materials on site being buried in the pit dug for construction of Reactor 5.

Red Star article 'Photographs for Academician Velikhov'.

Sir P Wright's lunch with V P Suslov in Moscow: a 'Chernobyl' Section has been set up in the MFA.

### 21 MAY WEDNESDAY

Visit of some Heads of Mission to Kiev.

Trud article describes work at site by miners.

Reactor described as 'still breathing like a fatally wounded animal'.

### 22 MAY THURSDAY

Izvestia article on the visit to Kiev by some Heads of Mission.

- Repetition of figure of 92000 evacuees.
- Kiev at 0.18mR/hr.

Semenov (see right hand column):

- 15 had now died.
- 20 critically ill.
- 299 hospitalised.

Radiation within 60KM of site down to 0.17mR/hr on 20 May.

Interview with Belorussian Health Minister (in Belorussian Republic newspaper only). Raised levels of radiation occurred in Minsk, Brest and Mogilev oblasts of Belorussia; local summer greens and fruit either not to be consumed or still not guaranteed safe.

IAEA Board of Governors meeting. Government Representative Semenov gave figures for dead and injured (see opposite).

Mr Shortt of Videlcom call on Head of Chancery: Soviets had urgent need of protective suits.

Politburo meeting (communique published 23/5). No mention of Chernobyl.

#### 23 MAY FRIDAY

Call on Rosen (IAEA) by member of UKMIS Vienna:

- Belief that accident was caused by an unauthorised experiment.
- Shcherbina had told Rosen in confidence that the Russians knew what happened but did not want to say yet, as 'one particular person was going to get punished for it'.

# 24 MAY SATURDAY

*Izvestia* article allaying fears about closure/contamination of Black Sea resorts.

# 25 MAY SUNDAY

*Izvestia* published letter from FRG Ambassador about Chernobyl, and an open reply.

# 26 MAY MONDAY

Pravda report 'Nightingales over Pripyat'.

- Levels of radiation at the site varied from background to 'hundreds of Roentgens (sic) per hour'.
- L A Voronin: radiation level falling every 24 hours. They were in full control of events.
- Chernobyl admitted to be 'The worst accident in the history of nuclear power'.

Velikhov (see right hand column):

- Death toll to 19 (not published in press).
- Only slight heat emission of nuclear fuel.
- Reactor now firmly 'smothered'.

Velikov press conference in Moscow (see opposite).

# 27 MAY TUESDAY

Pravda published report of comments by Rosen (IAEA) which included a remark that there had been raised levels of radiation in some Western European countries before information from the USSR reached IAEA.

### 28 MAY WEDNESDAY

Chief radiologist at a Moscow hospital Dr Angelina Guskova, quoted by Novosti (not in Soviet press):

1000 people had received injuries, some of whom were those living around the 30KM zone.

Academician Legasov (1st Deputy Director, Kurchatov Institute) comment on *Vremya*:

The Government Commission has nearly completed its investigation.

Literaturnaya Gazeta article on food testing.

Offer of further UK assistance conveyed to Shcherbina from Lord Whitelaw on behalf of HMG. (Undated reply received: equipment not needed at the moment).

### 29 MAY THURSDAY

Sovietskaya Rossiya article quoting Rhona Branson, British teacher in Kiev.

### 30 MAY FRIDAY

#### 31 MAY SATURDAY

Izvestia article about building a new road to the site.

Velikhov in Moscow for 'a couple of days'.

# 1 JUNE SUNDAY

### 2 JUNE MONDAY

Legasov interview in Pravda.

Details of early days of crisis.

Politburo communique of meeting on unspecified date: Chernobyl last item on agenda, but no new points.

Gorbachev's message to the Prime Minister.

Zamyatin call on Secretary of State. Hands over Gorbachev message (following 14/5 speech).

# 3 JUNE TUESDAY

Chazov press conference.

Death toll 25 (not published in Soviet press).

Pravda article: Reactors 1 & 2 to be restarted this autumn

Pripyat Gorkom has set up headquarters in Chernobyl. European Community demarche to V Petrovsky, Deputy Foreign Minister.

# 4 JUNE WEDNESDAY

Pravda article on work in Belorussia.

'contaminated spots' outside the 30KM zone.

Some evacuees are returning.

# 5 JUNE THURSDAY

Shcherbitsky speech to Ukrainian Union of Writers' Congress mentioning Chernobyl, published only in Republic press.

Batalin press conference:

Radiation levels:

Chernobyl raion = 1-2mR/hrKiev = 0.1-0.2 mR/hr

Gomel (Belorussia)

= 0.5 mR/hr

Minsk = normal background level.

Victims:

187 still in hospital; 10 critical. No more hospitalised since 26-27/4.

Dr Gale press conference (see right hand column):

Dose to Kiev had been half the normal annual dose.

Politburo meeting. See 6/6.

Press conference on Chernobyl headed by Deputy Chairman of the Council of Ministers Yu P Batalin.

Dr Gale press conference (see opposite).

### 6 JUNE FRIDAY

Politburo communique: Chernobyl first item.

### 12 JUNE THURSDAY

Visit to Chernobyl area by Komsomol leaver Mishin (till 14 June).

### 13 JUNE FRIDAY

Prime Minister's reply to Gorbachev's 31 May message handed over by HMA during a call on Schevardnadze.

List of UK questions handed to Second European Department concerning:

- a) current dose rates for a number of name locations.
- b) radiation levels on the ground and in foodstuffs.

# 14 JUNE SATURDAY

Izvestia article criticising slackness of local authorities.

# 15 JUNE SUNDAY

Pravda reports replacement of entire board of management of Chernobyl power station. Some senior officials still on the run.

# 20 JUNE FRIDAY

Politburo communique: no mention of Chernobyl.

Ministry of Agriculture, Fisheries and Food announces controls on movement and slaughter of sheep in North Wales and South West Cumbria. (Similar measures announced on 24 June for parts of Scotland.)

BATALIN Deputy Chairman, Council of Ministers, USSR.

CHAZOV Deputy Minister of Health.

ELTSIN Candidate Member of the Politburo; First Secretary Moscow City

Party Committee.

KOMPLEKTOV Deputy Foreign Minister.

KOVALEV First Deputy Foreign Minister.

LEGASOV Academician; First Deputy Director of Kurchatov Atomic Energy

Institute.

LYASHKO Chairman, Council of Ministers, Ukraine.

PETROSYANTS Chairman, State Committee for Utilisation of Atomic Energy.

REVENKO First Secretary Kiev Oblast Party Committee.

SEMENOV Soviet Representative at the IAEA.

SHCHERBINA Deputy Chairman of the Council of Ministers, Chairman of the

Commission on the Chernobyl Nuclear Accident.

SILAEV Deputy Chairman, Council of Ministers, USSR.

SLYUNKOV First Secretary, Belorussian CP.

VELIKHIV Academician, Vice-President, Academy of Sciences.

VORONIN Deputy Chairman, Council of Ministers, USSR.

YAGODIN Minister for Higher and Secondary Specialised Education, USSR.