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10 DOWNING STREET

THE PRIME MINISTER

8 May 1986

Dear Walter,

Thank you for your note on Chernobyl which was telegraphed out to me so that it reached me just before I arrived in Japan.

It was just what I expected. A real gem, full of insight and wisdom and so invaluable for our briefing for the Summit.

We had some quite good discussions at Tokyo about Chernobyl, and the result was the Declaration attached. It could have been stronger but the need to agree the text with seven countries puts a limit to what is possible.

Yours sincerely
Margaret Thatcher

The Lord Marshall of Goring, C.B.E., F.R.S.

811

bcc: Mr Wicks, PM's
Office

CENTRAL ELECTRICITY GENERATING BOARD

Sudbury House, 15 Newgate Street, London EC1A 7AU. Telephone 01-634 5111

From the Chairman

9 May, 1986

The Lord Marshall of Goring Kt, CBE, FRS

The Rt. Hon. Peter Walker, MP
Secretary of State for Energy
Department of Energy
Thames House South
Millbank
LONDON SW1

Dear Secretary of State,

Amongst the crisis activities of the last week, I have neglected to follow proper protocol and I apologise for that. In the last hours before she left for the summit, the Prime Minister asked for an instantaneous appreciation of the Chernobyl position and the immediate answer to several questions posed to me through her staff. I told your officials of the request and of the questions and I warned them that the content of my reply would repeat briefing I had already given you, but in the haste at that time, I neglected to send you a copy of the letter. May I therefore repair the omission by including it now. You will recognise that the content simply repeats earlier briefings I have given you.

Yours sincerely,



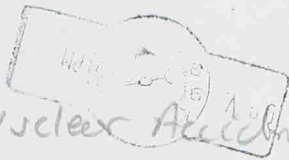
Marshall of Goring

cc: Mr A Goodlad
Mr I Manley

Disasters:

Soviet Nuclear Accident.

April '86.



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9 May, 1986

Chairman's Office

Mr N Wicks
Private Secretary to the Prime Minister
10 Downing Street
LONDON SW1

Dear Mr Wicks,

Lord Marshall's Letter to the Prime Minister
on Chernobyl

Thank you for telephoning this office yesterday. Lord Marshall was mildly embarrassed about the request, because, under the crisis of the last few days, he had forgotten to inform Peter Walker of the PM's request or of his reply. He has therefore now sent the attached copy of the letter to Peter Walker and Mr Goodlad with an apology for lateness. If the Prime Minister wishes to send the letter to other Ministers, she is welcome to do so, but Lord Marshall requests that she uses the attached draft (this is exactly the previous letter but with the deletion of the last sentence referring to the fact that Lord Marshall did not copy the letter to anyone. Many thanks!

Yours sincerely,

J A Morris

J A Morris (Miss)
Sec/The Lord Marshall of Goring, Kt, CBE, FRS

Disasters:
Soviet Nuclear Accident
April '86

CENTRAL ELECTRICITY GENERATING BOARD

Sudbury House, 15 Newgate Street, London EC1A 7AU. Telephone 01-634 5111

From the Chairman

The Lord Marshall of Goring Kt, CBE, FRS

2 May, 1986

The Rt. Hon. Mrs Margaret Thatcher, MP
Prime Minister
10 Downing Street

PRIVATE AND CONFIDENTIAL

Dear Prime Minister,

You have asked for my comments on the Russian nuclear accident at Chernobyl. Without any doubt at all, it is the biggest disaster the nuclear industry has had.

Design and Safety of the Russian Reactor

The precise technical description of the Russian reactors at Chernobyl is:

"Boiling water, pressure tube, graphite moderated".

In everyday language it can be described as the civil version of the reactors the Russians use in their weapons programme for producing plutonium. Those, also, have fuel cooled by water inside pressure tubes and with a graphite moderator outside those tubes. This reactor is not used anywhere in the West because it has a number of intrinsic disadvantages. As its name implies, the Russian reactor has some similarity to the boiling water reactors which operate in America and Japan, to the pressure tube reactors which operate in Canada, and the graphite cooled reactors which operate in the United Kingdom. The reactor it least resembles is the PWR which we are proposing to build at Sizewell.

I can best give you an appreciation of the slackness of Russian safety work by making a direct comparison between the Russian reactor and the steam generating heavy water reactor which we attempted to build in this country about a decade ago. The proper technical description of the steam generating heavy water reactor (SGHW) is:

"Boiling water, pressure tube, heavy water moderated".

Comparing this description with the Russian description, you will see immediately that the broad concept of the reactor is similar, but we had in mind to use heavy water instead of graphite. To remind you of the political history, the SGHW reactor was passionately advocated by Frank Tombs and the South of Scotland Electricity Board. The Minister of the day was Mr Varley and he announced a Government decision to build that reactor subject to a proper

The Rt. Hon. Mrs Margaret Thatcher, Mp

2 May, 1986

safety review. The circuit for the SGHW reactor and for the Russian reactor are virtually identical, except that we proposed to use heavy water where they use graphite. However, technical study of the two designs immediately demonstrates that our heavy water reactor has big safety advantages over the graphite moderated reactor. Intrinsicly, therefore, you would expect the heavy water reactor to get a safety licence more easily than the Russian graphite reactor. In fact, however, the SGHW proposal failed to pass British safety rules and after two years effort, John Hill and I recommended to the Government of the day that the SGHW project be abandoned. In the UK system we said there was no possibility of making the SGHW reactor meet our safety rules and be economic at the same time.

The Minister of the day was Wedgewood Benn. He had no choice but to accept our recommendation. In that same report, John Hill and I said that only the AGR and the PWR had a chance to meet British safety rules and be economic at the same time. The lesson to be drawn from that story is very clear. A very much better reactor concept failed to get safety approval in the United Kingdom, but the poorer Russian design got safety approval in Russia and 27 reactors of that type are now operating in Russia. Clearly the Russians must be content with lower safety standards. But this comparison of design must be reinforced by comparison of manufacturing quality and management excellence where, again, we suspect Russian standards do not meet our own.

This type of reactor provides the backbone of Russia's present nuclear electricity. It would be an economic disaster for them to abandon their use, but they all run the same risk of reproducing the Chernobyl accident. The position in Russia is particularly distressing because, almost certainly, one of their weapons reactors of very similar design suffered a similar disaster with a graphite fire and large contamination some decades ago at a site in the Urals called Kyshtyn. What actually happened in this latter incident is shrouded in total secrecy, but we believe a vast area of Russian forest was contaminated and all inhabitants were evacuated from it. If I am correct in guessing that this nuclear incident was due to one of their weapons reactors of similar design, then surely the Russians should have learned their lesson from that and avoided the scale up of these reactors into big civil versions like that at Chernobyl. In parallel with the construction of this unique hybrid Russian reactor, the Russians have now embarked upon the construction of PWR reactors, just as we and the rest of the world have done. That, of course, has a better intrinsic design; but whether they are safe or not in Russia depends upon the manufacturing standards and the management excellence which the Russians put into the business. Obviously, I am nervous about that.

Immediate Effects on the United Kingdom

I am sorry to tell you that, this morning, for the first time, we detected fall-out from the Chernobyl reactor with our monitoring instruments in Kent. We informed the Department of Energy of this two hours ago and I anticipate that your Government will feel obliged to make a public statement on the matter almost immediately. These levels of contamination are, of course, very low and do not pose a health hazard to the population. Their psychological effect will, however, be large.

The Rt. Hon. Mrs Margaret Thatcher, MP

2 May, 1986

Can the Russians be helped at Chernobyl?

Yes. Yesterday, the CEBG received some requests for information and help channelled through the IAEA in Vienna. We assume that the Russians are seeking help from other countries also, but if requested, we will send people and/or equipment to Chernobyl, but, of course, we can do nothing unless the Russians formally ask us to do so.

Can the Russian Safety Standards be Improved?

This is a major political question which only a summit meeting could address. It is clearly worrying that the Russians have a further 27 reactors of this type operating and they are just embarking upon a large PWR programme. If Russia was a democracy, then its Government would be obliged to seek the best help and advice internationally it possibly could. As it is, the Russians will probably do nothing. It is just possible they might agree to an "International Nuclear Safety Advisory Commission" provided it was associated with the IAEA in Vienna. This same idea was floated in international circles immediately after the TMI accident, and, at that time, I heard a vague rumour that the Germans were proposing Walter Marshall to be the head of it. If your summit meeting considers this subject, may I return the compliment and recommend to you the name of Dr Haunschild. He is the Permanent Secretary (the Germans call him Permanent Minister) at the Federal German Government Department of Science and Technology. He is an excellent man. He was very interested in the concept of an international nuclear safety commission and he has done his present job for so long and with such eminence, that I believe he would welcome a new challenge. I suspect, however, that you will be able to do nothing whatever because the Russians would find it unacceptable to submit their engineering, manufacturing and management to international over-sight and criticism.

Long Term Implications in the UK

Clearly this is a big setback for nuclear power. In my public speeches I am stressing the difference between our safety rules and that of the Russians and I am using the SGHWR story, as outlined earlier in this letter, to demonstrate that my arguments are not based simply on assertion but are based on historical fact, and recent historical fact at that. I have been pleased with the way people have received my arguments. I believe informed commentators and opinion formers think it is intrinsically plausible that the Russians have different and lower standards than ourselves. I am therefore hopeful that a massive public presentation campaign with the support of Government will retain the overall tolerance of the British public. However, we must expect greater local resistance to the siting of power stations (the "Not in my backyard" syndrome) and that, of course, will give us considerable difficulties.

The Rt. Hon. Mrs Margaret Thatcher, MP

2 May, 1986

There is one other important technical implication which I advise you about, in confidence, to make sure you do not say anything unwise in public. The Russian reactor is refuelled on-load without containment just as is done in our AGR and magnox reactors. The safety implications of that are, in my opinion, in no way comparable in detail, but they are obviously comparable in concept. From a safety point of view it is the most difficult part of AGR technology to justify and the nuclear inspector gives us some difficulties on it. It is just possible that the Chernobyl disaster was initiated by an on-load refuelling incident. If that turns out to be true, it would obviously give us serious public relations problems for our own gas cooled reactors, and it reinforces my existing opinion that if we ever do build more AGR's, we should redesign them to be refuelled off-load.

I must stress this is not a matter you should worry about. I am quite comfortable about our safety position and can defend it and I can defend a direct comparison of Russian and UK practices. (Since safety comes first in the UK, the AGR's are driven to low availability - i.e. we sacrifice economics not safety. In contrast the Russians achieve high availability - presumably by cutting corners on safety).

One final point you might bear in mind. If your summit discussions stimulate the concept of an international safety commission, the Americans themselves cannot greatly contribute to it, because their safety regulatory system is in disarray - it relies too much on written regulations and the intervention of lawyers - and the management of their nuclear regulatory commission and of some of their utilities has been shown to be so deficient, that increasingly the business of both regulation and management is being taken over by admirals retiring from the American nuclear submarine programme. Retired American admirals from Rickover's navy would not be acceptable to the Russians. Furthermore, an international safety commission is likely to look with considerable criticism at the Babcock and Wilcox design of PWR's in America. This is the one that gave trouble at Three Mile Island.

Obviously, there is no purpose to an international safety commission if the Russians do not join.

Yours sincerely,



Marshall of Goring