

D/9/08

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Our reference: FHP/1186/72  
Your reference:

24 November 1972

[redacted]  
Arms Control and Disarmament  
Research Unit  
Foreign and Commonwealth Office  
S W 1

*Copied to Director*



Dear [redacted]

Thank you for your letter of 7 November. I found the paper on PNE an interesting and useful summary of the subject and the problems to which it has, or may give rise to.

My general approach to PNEs and their usefulness (except by a major nuclear power for its own purposes on a Governmental basis within its own borders) has always been one of some scepticism; at least, unless one thinks in terms of decades. The practical possibilities and commercial prospects seem quite weak. I have therefore felt that the introduction of PNEs into arguments about PTBs and CTBT etc is an unnecessary complication. Basically I believe that if a arms control measure is ripe for agreement in the test ban area, PNE complications will not be allowed to stand in its way. When the crunch comes and the impetus to a CTBT is strong, solutions will, I feel sure, be found to problems which now seem difficult, and those solutions may not be the ones which now seem most likely. In the last analysis, it does not seem to me that, for instance, the complete banning of all nuclear explosions, including those for peaceful purposes, is out of the question. (Not that I would myself favour such a proposal; as you know, I tend to believe that a complete test ban could have a destabilising tendency rather than the reverse.)

With that general approach, I find some of your conclusions difficult to support. I should for instance prefer not to try to bring the PTB into line with NPT in respect of "contained" PNEs outside national frontiers; while there is at least a chance that all PNEs would be banned along with weapons explosions, I should not favour building up PNE case law (see your para 47a). Your para 47b is too strongly worded; "may" expresses my view better than "in all probability". Also in this paragraph, I doubt whether on-site inspection of PNEs would really be very useful. If major nuclear powers are, for instance, allowed a quota of PNEs then I should think that assurances from the conducting power as to the purpose, plus whatever continuation intelligence from national sources may be available would have to suffice.

As for internationalising PNEs (your 47c), who would foot the bill? To put it crudely, all the evidence is that the non-nuclears want whatever benefits may be wrung out of the nuclear powers, without having to pay a commercial price for them. I see an international organisation being even less successful economically at PNE than the national organisations; therefore I tend to discount its possibility. I believe

the present set up, where IAEA essentially holds the ring between the major nuclear power and the non-nuclear recipients (if there are any) of FNE services, is about right.

In addition to these comments on your conclusions, I have the following comments on the text.

Your para 5. The blast and shock effects from PNE and other nuclear explosions are well understood from data derived from such explosions, not merely by extrapolation but from conventional explosions.

ed Paragraph 7. The question of what are "adequate safety measures" is complex, and each proposition needs to be examined on its own merits against a background of internationally/standards, and what degree of disturbance of the environment is socially acceptable. And I do not know that it is true to attribute the commercial non-viability of US PNE proposals entirely to the cost of "essential safety measures"; in some of these proposals I believe PNE is simply not the cheapest engineering solution to the problem.

Paragraph 9, line 6. You might for the lay reader, explain the word "simulation" in this line.

Paragraphs 17 and 18. Another major reason for not defining a fallout threshold is the sheer technical difficulty in doing so, and in verifying such a threshold unambiguously.

Paragraph 22. I believe in the last sentence very strongly, and would not like to see any attempt to define a threshold for "radioactive debris". I really think there is no case for tinkering with the PTB in this respect.

Paragraph 31. The concept of including PNE in a CTB quota seems to me to be a good solution. However some extra provision might have to be made for PNEs carried out by a nuclear power on the territory of a non-nuclear power under international supervision, and distinct from those carried out by the nuclear power on its own territory, which need not, in my view, be inspected.

Paragraph 31, second line from the bottom of page 13. For "will almost certainly" substitute "is likely to".

Paragraph 33. I doubt the need or usefulness of an on-site inspection of FNE on the territory of a nuclear power, even if this takes place under an exemption clause of a CTB. If major nuclear powers have a quota for PNE, are obliged to notify the time, estimated yield and location in advance, and state the reason for the explosion, I find it difficult to believe that on-site inspection would give significantly more assurance than national means of intelligence.

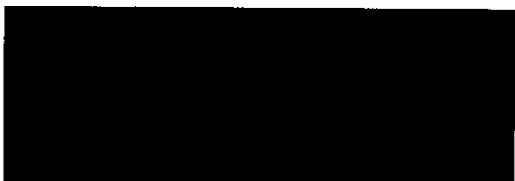
Paragraph 34. I do not understand "wespon "batch testing"". Proof tests, go-no go tests, or tests for stockpile surveillance are perhaps what is meant here.

Paragraph 42. I believe I would state HMG's interest "c" as "to retain a body of expertise so that we may be able commercially to offer services in connection with PNE".

Yours sincerely,



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27 November 1972.

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**PEACEFUL NUCLEAR EXPLOSIONS.**

Thank you for your letter of 6 November enclosing your draft study on this subject. I note this "does not purport to represent or recommend, official policy" but is meant "to contribute to an eventual review of the whole issue of non-proliferation". I have seen you refer to the latter on another recent occasion and I wonder what you have in mind?

Meanwhile I attach some comments on your draft research study and I am sending a copy to [redacted] in the Ministry of Defence.

Yours sincerely

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Arms Control & Disarmament Research Unit  
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PEACEFUL NUCLEAR EXPLOSIONS.

Paragraph 3. Recognising the first sentence in paragraph 3, I wonder why you proceed to include a section on Technical and Economic Feasibility - even if "only to give a brief background to the rest of the paper"? To attempt the latter is bound to involve you in statements which are no less bound to be unsatisfactory in the absence of full exposure. Instead of an objective analysis of pros and cons you face the danger of being selective, or possibly biased, or merely assertive.

I would therefore suggest that, for your declared purpose, you should delete all between the end of the first sentence in paragraph 3 and the third sentence in paragraph 7; then again between the latter and the fourth sentence in paragraph 8, following on immediately with the first sentence in paragraph 9 and then paragraph 10. This collection of separate pieces might then be rounded off with the sentence about UK policy in paragraph 9. Obviously slight editorial changes may be necessary in linking the pieces together.

Paragraph 4. line 7 (page 2). If not acting on above suggestion I would insert the words "claimed to be" immediately in front of "manifold".

Paragraph 6. The first sentence might be taken to mean that there are well-defined "projects", (feasible, sensible and economic?) only awaiting release of the "brake" identified as venting of radioactivity. Are you going so far as that in judgment?

Paragraph 7. Again, do you mean to commit yourself to the judgment in the first sentence of paragraph 7?

Paragraph 12. line 13. "Non-nuclear" or "non-nuclear weapon states"?

line 14. "third-world pressure" may be a fair enough description but I would prefer to see "uninformed" associated with the "pressure".

Paragraph 13. (lines 8 - 11). re-write: "Any country that explodes a nuclear device, even for peaceful purposes, would be regarded by other countries as capable of producing a nuclear weapon and must be considered in effect a nuclear weapon state".

line 13. delete "go nuclear". Substitute "develop nuclear weapons".

Paragraph 11. line 1. Are you judging from all US and French nuclear tests or from US uncontained underground tests and French atmospheric or underground tests?

lines 5 - 7. Is this not at least partly because Plowshare has tended to recede in budgeting, planning and political backing?

lines 7 - 10. Is radioactive pollution from sources in developing countries likely to be any less a public hazard, or generally more acceptable, than from developed countries?

Paragraph 22. lines 8 - 10. I suspect the "case" is much more likely to be based on acceptance of violation by those wielding big enough sticks than on any new success in defining "exactly" what constituted radioactive debris.

lines 11 - 17. I prefer the realism of "per contra":

Paragraph 23. last sentence. I am not clear on what is meant; certainly a nuclear weapons state might thus be excused violation of the partial test ban treaty but he would still be polluting somewhere?

Paragraph 26. lines 8 - 12. assuming PNE's were economic and generally acceptable

Paragraph 31. line 5. "quota arrangement" requires clarification.

lines 6 - 9. finally proclaims PNEs and weapon testing as indistinguishable?

Paragraph 33. lines 5 - 6. Would there be from a near position?  
(See comment on paragraph 31).

Paragraph 34. line 9. Who is to define "militarily significant" information? This is not likely to be something absolutely definable with same applicability to all comers.

Paragraph 36. lines 4 - 6. What was once done by perhaps false hopes or misunderstandings could probably be undone by better "education" and greater realism.

Paragraph 37. line 5. "benefits" have yet to be demonstrated.

Paragraph 39. lines 2 - 4. a very long way off?

Paragraph 40. lines 1 - 5. a dream?

Paragraph 44. The first two sentences appear to be at odds with each other?  
If the second is true (and it is) how good can we be in the first?

Paragraph 45. Perhaps not an unreasonable statement but should not be made to appear more than speculation.

Paragraph 46. line 3. do you include the development of the devices themselves?