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9th August 1979

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Prime Minister

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Dear Bryan,

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COMPREHENSIVE TEST BAN

In Roger Facer's letter to Clive Whitmore of 25th June, he forwarded comments by our technical Intelligence Staff on two points made by Dr Frank Press, Scientific Adviser to President Carter, during his conversation with the Prime Minister on 18th June. Subsequently, we told you that this intelligence information had not yet been fully evaluated in the Ministry of Defence. This has now been done, and our conclusion is that it does not invalidate the earlier advice given to Ministers.

As far as CTB seismic verification is concerned, detection capabilities against an underground nuclear test depend on the environment in which the test is carried out. They are at their highest when the test device is detonated with close coupling to hard rock and they fall if the explosion takes place in soft rock or is deliberately de-coupled. The Nuclear Advisory Panel reported that, even with the planned improvements to the US Atomic Energy Detection System and with ten National Seismic Stations (NSS) installed on Soviet territory, "the possibility of carrying out an undetected nuclear explosion with yield up to five kilotons in an underground cavity has to be recognised".

It has never been suggested that seismic detection systems are infallible. They would, however, be supplemented by non-seismic Intelligence gathering means such as those that produced

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the information in the Annex to our previous letter. Therefore the Russians could never be sure that a clandestine test at yields below the seismic detection threshold would not give rise to suspicions.

The information in our previous letter on enhanced radiation warhead development in the Soviet Union was a mixture of hard Intelligence and speculation derived from British studies of anti-ballistic missile (ABM) defences and development work on warheads. The most significant point is that this information does not invalidate earlier CTB advice that Russian evasion at low kiloton yields (say up to ten kilotons maximum) during a three year CTB would not affect significantly the East/West military balance. Evasion at higher kiloton yields, which could be of military significance would, of course, be precluded by seismic and other verification measures.

Our advice (in Roger Facer's letter of 11th May) has been that the West's seismic detection capability, if augmented by NSS in the Soviet Union, would be adequate for verifying a three year CTB. A ban extending beyond three years could, however, have different consequences. Successful Soviet evasion, even at low kiloton yields, could then be serious for the military balance not least because it would allow the Russians to maintain the competence of their weapon design teams.

For background, I attach a more detailed note analysing the two points made in our previous letter.

I am copying this letter to George Walden (Foreign and Commonwealth Office) and Martin Vile (Cabinet Office).

*Yours sincerely,*  
*David Omand*  
(D B OMAND)

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