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UNITED KINGDOM ATOMIC ENERGY AUTHORITYNUCLEAR AND NON-NUCLEAR RESEARCH AND DEVELOPMENT COMMITTEEPEACEFUL USES OF NUCLEAR EXPLOSIVES - THE CASE FORAUTHORITY SUPPORT OF FURTHER STUDIES

Note by [REDACTED]

1. The PNE programme was first approved by the Committee in November 1969 in response to a desire expressed by the Ministry of Technology to ensure that UK interests in this area were protected. An annual expenditure of £60,000 was approved.
2. At the review of the programme after one year of operation, the Committee took the view that it would be proper to seek funding for the work from DTI. DTI did not respond to the approach and the programme continued at a reduced annual level of expenditure for 1971/72 of £30,000 from the AE-Vote.
3. DTI have still not declared their position in this matter and it is now necessary to decide whether the programme should continue to be funded from the AE-Vote.
4. The accompanying Note - ARD(NNN)(72)16/N - by [REDACTED] sets out the background to the work and its aims and describes the present and proposed programmes. The aims are repeated here because of their importance to the question of funding. They are:  
  
"To understand the science and technology of peaceful nuclear explosives so as to be able to advise on and participate in IAEA activities in this field, to give advice to industry and to support studies aimed at assessing the technical and economic opportunities of PNE for the UK".
5. This work could shortly pass, with the rest of Aldermaston's work, to the Ministry of Defence. But MoD have volunteered that, whilst, in their view, research and development on explosives themselves - whether for peaceful or military purposes - should be kept firmly within their ambit, "the Authority should take the lead in the exploitation of peaceful nuclear explosions".

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6. The most likely economic use of PNE is in creating cavities under the continental shelf for storing oil and gas and for stimulating, by explosions in the vicinity, the flow of oil and gas from "tight" or near-depleted fields. American and Russian work directed to these two ends makes substantial economic claims for the use of PNE. But recent discussions with the UK oil and gas industries lead to the conclusion that, accepting the economic claims, there would nevertheless be serious technical and social obstacles to overcome, and the benefit to new oil and gas fields, such as those in the North Sea, is likely to be well into the future. It follows that only a very limited amount of effort could be justified solely by direct economic returns to UK interests.

7. There are, however, broader reasons why the UK should maintain a viable level of effort in this area. Under the Non-Proliferation Treaty, the nuclear powers are required to make available to non-nuclear powers potential benefits from PNE at "as low a cost as possible" - in particular excluding R & D costs for the explosive. Such help might be given through the IAEA and there is some case for saying that the UK - being unlikely to provide the explosive itself - is in a unique position to provide disinterested advice.

8. Finally, there is a clear military purpose to be served in maintaining interest in the possibilities of PNE and the work being done under this heading in other parts of the world.

CONCLUSION

9. There is both a military and a civil interest in maintaining some continuing effort in this field of work. Any sponsorship of civil work must rest with the UKAEA. At this stage, allowing for the time factor, the potential civil benefits look small, but there is a case for some continuing minimum viable level of effort with civil aims - say one professional - and for the appointment of an Authority project officer to exercise a general surveillance and to whom Aldermaston should report. [REDACTED] is familiar with the subject and could undertake this role.

RECOMMENDATIONS

10. The Committee are invited to agree:

- (1) that for 1972/73 £15,000 should be allocated from AEA funds for work on the civil applications of nuclear explosions;
- (2) that [REDACTED] should be appointed Project Officer for this work.

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