

DETAILED COMMENTS ON ANNEX TO DS2/4/4 OF 21 FEBRUARY 1974

- a) Para 1. Sentences 1, 2, & 3. Replace by "Our strategic deterrent force consists of four nuclear submarines, each of which is armed with 16 Polaris A3T missiles. The A3T missile carried 3 re-entry bodies, each with a nuclear warhead. With four submarines, it is possible to maintain a continuous patrol by one boat with a second boat being on patrol for some of the time but it is impractical to maintain a continuous two boat patrol.
- b) Para 2. Sentence 1. Modify the end of the sentence to read, "..... is due to expire restricts the numbers of ABM missiles and launchers which may be deployed for the defence of Moscow to 100; it also places limits on the radar system for the control of these missiles"
- c) Para 2. Sentence 2. Replace by, "At present some exo-atmospheric ABM missiles, i.e. missiles designed to intercept incoming re-entry bodies outside the atmosphere, have been deployed around Moscow"
- d) Para 2. Sentence 3. Replace by, "The existing ABM radar cover for Moscow is incomplete and can be out-flanked from North Atlantic's SAM patrol areas but it is estimated that we will no longer be able to do this after the mid-1970s because the radar cover should have been extended by this time".
- e) Para 2. Sentence 4. Replace by, "Thereafter, with our present Polaris missiles, we could no longer be sure that sufficient re-entry bodies would penetrate the defences to give the level of destruction of Moscow which is deemed necessary to ensure the continuing credibility of our strategic deterrent. The existing force would, however, remain wholly effective against undefended targets, e.g. those assigned to the UK under NATO strike plans.

1. ITEM 1 - ANNOUNCEMENTS

1. The CHAIRMAN said that DCA(IN) had unavoidably been called away to other duties and sent his apologies for being unable to take the chair at the Board meeting. He also announced that Rear Admiral Leach and Mr Blanks were about to take up other appointments and consequently that they would not be attending Board meetings in future. He expressed, on behalf of the Board, his appreciation of the contributions they had made to the Board's activities over the past years.

2. ITEM 2 - REPORT ON TECHNICAL PROGRESS ON PROJECT KH 793
(PRB/P(73)3)

2. Introducing his note on KH 793 technical progress, the CHAIRMAN said that the reply to Secretary of State's letter to Dr Schlesinger was still awaiting US clearance, the reasons for delay not having been divulged. Hence completion of the arrangements for the PDD work in the US were being held up. In the meantime work was proceeding on the original "case-by-case" basis and sufficient funds had been made available to finance LMSC's activities. The continuation of co-operation from the AEC and DNA was, however, not dependent upon the exchange of letters between S of S and Sec Def and the programme on warhead development and effects testing was proceeding normally. Agreement had been reached between SSFO, DC, Polaris and himself on the setting up of a Joint Working Group to oversee activities in the US under the PDD contract. DAWD and DDW(P) would serve as joint UK Chairman and they were due to visit Washington shortly to discuss with Admiral Wertheim the procedures to be adopted by the Joint Working Group. Negotiations with the Australians on the release to them of information connected with our Woomera trials and on the time scale of these trials had been successfully concluded; AS/LGW 3 was informed of the situation.

3. The CHAIRMAN continued by drawing attention to the fact that progress on the warhead and REB development was good and running according to time-scale. The preliminary results from the M2 effects test were satisfactory and if the M3 test proved equally successful, it should be possible to curtail the effects test programme with a consequential saving of between £8M and £9M. There was room for additional saving of about £1M if the device test in April, 1974 worked sufficiently well to allow the cancellation of the planned second device test. On the other hand the Australian trials schedule had slipped by some months partly due to the S2 decoy failures and partly due to delivery difficulties with Falstaff vehicles and PAC hardware. And PAC development gave some cause for concern even though a relaxation in the hardening specification eased some of the electronics problems. In particular vibration tests had revealed unacceptable structural resonances which would interfere with the proper operation of the attitude control system; extra effort to overcome this difficulty had been enlisted. There were some signs that the planned dates for the P1 to P6 trials were threatened by delays in the telemetry equipment. Overall the conclusion to be drawn from PERT Run 51 was that first deployment had slipped by 17 months from the TCF estimate to October 1978 but that there was scope for the recovery of up to 6 months of this slippage.

4. REAR ADMIRAL SCOTT said that he wished to have recorded that

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of maximum range in this last case would be less, say about 2 n.m but when discarded the blast shield would be revealed as a discrete object of about 1 sq metre echoing area which might have systems objections. The RAE were studying all three proposals and would welcome an opportunity to discuss them with the other authorities and would organise a meeting for that purpose.

ACTION (87) RAE/Hd Air Arm

9 US SUPPORT WORK UNDER THE PSA - UK/US JOINT MONITORING GROUP

9.1 DAWD, Mr Janisch reported that DDW(P), CRDA and he had met and agreed terms of reference for the Joint Monitoring Group for the UK side. A general procedure for mounting visits had also been agreed. It was proposed to have nominees to watch the status of various aspects of the work and report these to the Joint Chairman DDW(P) and DAWD. A draft of the terms of reference would be available very shortly and DAWD took an action to send a copy of these to DC(Polaris) and ACCSA(N) as soon as they were agreed.

ACTION (88) DAWD

9.2 AD/^{MD} 1. enquired as to the position with regard to work being done on the "Special Studies" line item in the present interim situation and with regard to UK personnel to be sent to the US. The Chairman said that no new work should be initiated but sufficient money should be provided to keep existing tasks "ticking over" until 1 April 1974. Staff to be sent to the US should be delayed until approval of the Project is received. The Chairman said he appreciated difficulties resulting from the lack of deliverable hardware but saw no action that could be taken at the moment.

10 UK/US VISITS ON KH793

10.1 DAWD, Mr Janisch said that he had now received a reply to a suggestion he had made to Mr Waddingham, DC(Polaris). He proposed to reply as soon as possible and would send a copy of his reply to DDW(P). The whole matter should be settled by the end of February and he would inform DC(Polaris) and ACCSA(N) of the outcome.

ACTION (89) DAWD

11 SUBMARINE SAFETY - PROGRESS REPORT

11.1 DDW(P), Capt McLellan presented the following statement on progress:-

STATEMENT BY DDW(P)

11.1.1. "A statement on the current position regarding SSBN modifications to allow for the introduction of Liquid Propellants was made in the Annex to DPT's P1/581/73 dated 26 November 1973.

11.1.2. There have been some technical changes since then as a result of firming up of specifications and it is intended to circulate an amended version of the annex. Additionally, the valve line-up indication system then proposed is being extended to include positive interlocking of certain gas system valves. This will at least drastically reduce the possibility of a pressurisation accident.

11.1.3. The status of the safety package, the detailed design of which is being pushed ahead as fast as possible, is that it is considered to form a satisfactory basis for planning to fit in RESOLUTION during her second refit.

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added that it was questionable whether there would be savings on missile purchases. The CHAIRMAN commented that the proposed BAC costs were still subject to justification and therefore could properly remain as a contingency for the moment. MR MANN supported this view in order to maintain consistency with LTC 74. As for the missile purchases, the CHAIRMAN said that he would be most unhappy if DC Polaris could not negotiate some savings.

10. MR SCRIMSHAW said that, in view of the programme slippage, he was surprised at the smallness of the increase. The CHAIRMAN said that due account had been taken of estimated programme delays and he instructed Mr Mann to supply Mr Scrimshaw outside the meeting with an explanation of the way in which the new estimates had been drawn up.

11. REAR ADMIRAL LEACH said that, in view of the submissions already made on the KH 793 project, he saw no need to submit these latest cost estimates to the Chiefs of Staff or Ministers. He did, however, consider that further scrutiny should be given to the RNAD Cullport proposals even though at this stage it would be prudent to make provision for them in full in LTC 1974. MR GREEN agreed with these views and pointed out that the latest estimates raised no new problem in relation to the financial targets set for the next three years.

12. In the light of the discussion, the BOARD

- (2) took note of the financial statement
- (3) agreed that it should be used as the basis for the relevant LTC 74 entries
- (4) agreed that it should be used if and when there was a need for Ministerial submissions
- (5) invited the Navy Department to review the RNAD Cullport proposals

ITEM 4 - SUBMARINE AND MISSILE SAFETY

(TRB/P(73)5)

13. The CHAIRMAN said that he had invited DC Polaris to supply the Board with a paper on Submarine and Missile Safety for information rather than for decision. The information in the paper now before the Board had been the subject of complete discussion between the Navy's Magazine Safety Committee, AWRE's Weapon Safety Co-ordination Committee and the Ordnance Board. REAR ADMIRAL SCOTT said that he was in discussion with the Controller of the Navy on this subject and in particular on whether the principle of accepting liquid propellants on board submarines needed to be endorsed by the full Admiralty Board.

14. CAPTAIN MANVELL said that, in another context, the Navy Department had been examining the safety situation in the submarine Missile Compartment and there was no doubt that there was a fire risk in the nuclear submarine environment. The safety precautions being proposed for KH 793 were only palliatives and not means of eliminating the risks. They had to be subjected to full scale trials but the time scale was such that the results from these trials had to be anticipated in drawing up the refit work package for RESOLUTION. In response to a question from Mr Mann,