THE UNDER SECRETARY OF DEFENSE

WASHINGTON, DC 20301-3000

August 28, 1992

ACQUISITION

MEMORANDUM FOR SECRETARY OF THE NAVY

SUBJECT: New Attack Submarine Capability -- Acquisition Decision Memorandum

The Defense Acquisition Board met on August 18, 1992, to consider the Navy request for approval of Milestone 0 for a new attack submarine capability. The Mission Need Statement was validated by the JROC by memorandum of October 23, 1991. The Chairman, Conventional Systems Committee, recommended approval of Milestone 0. I approve Milestone 0 and the initiation of the concept definition studies.

The Cost and Operational Effectiveness Analysis (COEA) activities should begin immediately, be prepared in accordance with DoD 5000.2M, and examine the alternatives shown on the attached chart. More detailed COEA guidance is also attached. The Navy will provide written quarterly COEA progress reports to me and briefings to the OSD staff. No changes to COEA guidelines may be made without my approval. The new attack submarine performance attributes specified by the Chief of Naval Operations memoranda of January 3 and February 19, 1992, and the associated report forwarded to the Congress on June 22, 1992, as requested in Senate Appropriations Committee Report 102-154, are considered preliminary efforts pending COEA completion and concept definition. The Navy will provide to me proposed measures of effectiveness for the new attack submarine in time to be included in the COEA. The COEA and industrial base studies will constitute important inputs to decisions on the timing of milestone reviews for future submarine acquisitions. My approval to initiate concept definition studies does not constitute approval for the start of a new attack submarine in the 1990's.

The ASD(P&L) and the Navy will complete the industrial base analysis by November 15, 1992. Upon completion of the analysis, the results will be factored into the ongoing COEA as appropriate. In addition, OUSD(A), with support by the Cost Analysis Improvement Group, will prepare industrial base alternatives, if needed, for consideration by the Deputy Secretary during the budget cycle.

Other new submarine related feasibility studies may proceed with a spending limit of $30M until completion of the submarine industrial base study.

Don Yockey

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Attachments

#449

SUBMARINE ONLY ALTERNATIVES

MULTI-MISSION CAPABILITY

I. SSN-21	COST AND ANALYSIS BASELINE 1 PER YEAR AT 1 YARD A) START IN FY-96 B) START IN FY-98
II. SSN-21(V)	REDUCED COST SSN-21 *10,000 TON CLASS* MINIMUM OF 2 TO BE EXAMINED
III. SSN-688I	INCORPORATE ALL AVAILABLE TECHNOLOGY A) START IN FY-96 B) START IN FY-98
IV. NSSN	A) MORE AFFORDABLE *($1B)* B) $ LESS THAN OR EQUAL TO $ FOR SSN 688I C) 5000 TON D) OTHER E) DELAY START 2002, 2006
V. TRIDENT (V)	*{a) WITH AND b) WITHOUT TUBE VOLUME}*
VI. CONVENTIONAL	NAVY TO SELECT ONE FROM NON-NUCLEAR OPTIONS, AND TO INCLUDE SSn

August 28, 1992

New Attack Submarine Milestone I COEA Guidance

This document provides guidance for the Cost and Operational Effectiveness Analysis (COEA) required for the Milestone I review of the new attack submarine.

In accordance with DoDI 5000.2, COEAs serve to evaluate the costs and benefits associated with alternative ways to address recognized defense needs. Milestone I COEAs typically are developed to facilitate program definition and, therefore, assess a broad range of alternative concepts.

Alternatives

The COEA should consider a broad range of submarine alternatives, avoid arbitrary restrictions in design characteristics, and incorporate emerging technology where appropriate. As a minimum, the analyses should include examination of the following alternatives:

(1) SSN-21: Assume continued production of SEAWOLF at a rate of one per year at one shipyard. Assume two different start dates: (A) FY-1996; (B) FY-1998. This alternative will serve as the cost and analysis baseline.

(2) SSN-21(V): Assume at least two lower cost variants of the SSN-21 with displacements in the range of 10,000 tons.

(3) SSN-688I: Assume variations of the SSN-688I class that incorporate all available technology. Examine two different start dates: (A) FY-1996; (B) FY-1998.

(4) New nuclear-powered attack submarines: Examine a range of alternative new nuclear attack submarines. Include alternatives with reduced capabilities relative to those of the SSN-21, and designs smaller than that of the SSN-688I. Examine designs smaller than 5000 tons and options with reduced or deleted mission capabilities; e.g., power projection. These designs should be more affordable ($1B), less than or equal cost of the SSN-688I. Examine three different start dates: (A) FY-1998; (B) FY-2002; (C) FY-2006.

(5) TRIDENT (V): Assume selected variations including differences in tube volume of the Trident design, including a conversion of existing units, with emphasis on power projection mission.

(6) Conventional Submarines: Examine a range of conventionally-powered submarines, including as a minimum the following technologies: Diesel; Closed Cycle Diesel; Air Independent Propulsion; Fuel Cell; Stirling Engine; a Hybrid Submarine using a small reactor to recharge its batteries (SSn); and Advanced Batteries. Display the effect of overseas basing on this alternative.

Analysis Plan

The Navy will develop an analysis plan describing the proposed analytic approach, models, measures of effectiveness, assumed threat, scenarios, and schedule for completing this COEA. This analysis plan should be presented to the Conventional Systems Committee within three months of the August 18, 1992, Milestone 0 DAB.

Scope of Analyses

The COEA should provide information sufficient to understand the attack submarine characteristics that will be recommended for development in Phase I. The analysis will aid decision making by illuminating the advantages and disadvantages of the alternatives considered, and by specifying what scenario factors, assumptions, and system characteristics drive the results.

Analysis should be performed for each combat mission to which submarines are expected to contribute. A baseline should be established by assessing the capability of the planned 2006 (FYDP extended) U.S. combat forces to accomplish each such mission in the context of the DPG scenarios against the validated threat. The potential contribution of each of the submarine alternatives to meeting the combat mission deficiencies should then be assessed through suitable force-on-force analysis.

The analysis should aid in establishing the value of key performance parameters, including speed, payload, sensor performance, and quieting, for each assigned mission. The results should help identify the most cost-effective candidates to be considered by any ensuing Milestone I review. The key performance characteristics of this candidate should also be reflected in the final Operational Requirements Document and any Acquisition Program Baseline that would be prepared for a future formal acquisition program.

The start date for initial construction and procurement profiles for submarine alternatives should be derived from the analysis. These dates and profiles will depend upon assumptions and insights on service life and mothball configuration as well as effectiveness assessments and the results of the ongoing USD(A)/Navy submarine industrial base study. Results from the Defense Science Board study of submarine service life should also be considered in developing these assumed start dates.

Scenarios

The submarine missions examined in the COEA will be consistent with the scenarios in the Defense Planning Guidance (DPG). The details of the scenarios will be coordinated with the Joint Staff, the PA&E staff, and DIA.

Effectiveness

The analyses should show the relative effectiveness of each alternative using revised Top Level Warfighting Requirements (TLWRs) consistent with the new DPG scenarios and DIA-approved threats.

The measures of effectiveness (MOEs) will be defined to measure operational capabilities of the alternatives across the warfare areas identified in the Mission Need Statement. The COEA should show how the MOEs relate to winning the war or contingency, as reflected in a comprehensive set of TLWRs, revised reflect new threats and scenarios in the DPG.

The MOEs should be chosen taking into consideration the need to derive parameters and criteria that can be evaluated consistently throughout program development and testing.

Costs

A variety of cost measures should be provided, including the present value (discounted) estimates of the life cycle costs, and cost profiles over time.

Estimates of acquisition and thirty-year operating and support costs for each alternative should be included in the COEA and coordinated with the Cost Anslysis Improvement Group. This will require separate estimates of R&D, procurement, construction, manpower, and O&M costs, including decommissioning costs as well as costs associated with reconstituting and/or maintaining the nuclear industrial base. The analysis should include relevant cost impacts on the submarine construction industrial base for each of the alternatives considered.

The COEA will show the cost sensitivity to different production rates that may be required as a result of future decisions on the attack submarine force structure.

Comparing Cost and Effectiveness

Cost and effectiveness comparisons are rarely useful when reduced to single measures or simple ratios, unless accompanied by supporting data. Summary comparisons of alternatives will include all relevant costs, capabilities, and effectiveness indicators.

To the extent known, the characteristics of each concept that drive effectiveness, performance, cost and uncertainty will be identified. Sensitivity of the results to changes in performance and schedule, uncertainties in the cost and effectiveness estimates, and possible cost and performance thresholds for each alternative will be documented in tradeoff analyses.

Study Guidance

The Navy will provide periodic status reports and opportunities for consultation at least quarterly to OUSD(A), OUSD(P), OASD(PA&E), and ODOT&E. These periodic consultations with OSD will serve as the primary vehicle for ensuring that the COEA reflects the intent of the Milestone 0 acquisition decision memorandum. The Director, Naval Forces Division, OASD(PA&E), has been selected by the ASD(PA&E) to serve as a principal OSD advisor for this COEA.

Attachment: Vugraph of Submarine Only Alternatives, Multi-Mission Capability