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1993 NAVY BUDGET

Potential Reductions and Rescissions in RDT&E Programs

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The Honorable Daniel K. Inouye
Chairman, Subcommittee on Defense
Committee on Appropriations
United States Senate

The Honorable John P. Murtha
Chairman, Subcommittee on Defense
Committee on Appropriations
House of Representatives

In response to your requests, we reviewed the Navy's fiscal year 1993 budget request and prior year appropriations for its research, development, test, and evaluation (RDT&E) programs. Our objectives were to identify potential reductions to the fiscal year 1993 budget request for selected programs and potential rescissions to the fiscal year 1992 appropriations. So that the potential reductions and rescissions could be considered in your evaluations, we briefed your staffs on the preliminary results of our review prior to your Subcommittees' markups of the Defense Appropriations Bill.

Results in Brief

We identified $176.4 million in potential reductions to the RDT&E, Navy budget request for fiscal year 1993 and $4.4 million in potential rescissions to appropriated funds from fiscal year 1992. These potential reductions and rescissions are summarized by program in table 1. More detailed information on the results of our review is in appendix I.

Table 1: Potential Reductions and Rescissions to RDT&E, Navy Programs

Dollars in millions

Program element	Number	Fiscal year 1993	Fiscal year 1992	Total
Advanced Antisubmarine Warfare Target	0603529N	$15.1		$15.1
Surface Antisubmarine Warfare	0603553N	19.1		19.1
Mk-48 Advanced Capability Torpedo	0603691N	13.6		13.6
Surface Ship Torpedo Defense	0603506N	13.0		13.0
Acoustic Search Sensors	0604261N	16.4	$4.4	20.8
Electric Drive System	0603573N	99.2		99.2
Total		**$176.4**	**$4.4**	**$180.8**

We also identified potential reductions of $22.3 million and potential rescissions of $1.2 million to the RDT&E, Defense Agencies budget for fiscal year 1993 and fiscal year 1992, respectively. These findings concern the unmanned aerial vehicles joint program and are discussed in appendix II.

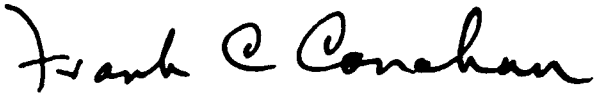
Scope and Methodology

To conduct our review, we interviewed budget and program officials and reviewed pertinent program documents and budget support data from the Department of the Navy, Washington, D.C.; the Naval Air Warfare Center, Warminster, Pennsylvania; the Naval Undersea Warfare Center, Newport, Rhode Island; and the Naval Surface Warfare Center, Carderock Division Detachment, Annapolis, Maryland.

We conducted our review from February to September 1992 in accordance with generally accepted government auditing standards. We did not obtain written agency comments on this report. However, we discussed the information in a draft of this report with officials from the Office of the Secretary of Defense and the Department of the Navy and incorporated their comments where appropriate.

We are sending copies of this report to other appropriate congressional committees, the Secretaries of Defense, the Acting Secretary of the Navy, and the Director of the Office of Management and Budget. We will also make copies available to others on request.

This report was prepared under the direction of Richard Davis, Director, Navy Issues, who may be reached on (202) 275-6504 if you or your staff have any questions concerning this report. Major contributors to this report are listed in appendix III.



Frank C. Conahan
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Abbreviations

ADCAP	Advanced Capability
ASW	antisubmarine warfare
ASMS	Advanced Surface Machinery System
ICR	Intercooled Recuperated
OSD	Office of the Secretary of Defense
RDT&E	research, development, test, and evaluation

Potential Reductions and Rescissions to Navy RDT&E Programs

We identified $176.4 million in potential reductions to the Navy's fiscal year 1993 RDT&E budget request. We also identified $4.4 million in potential rescissions from fiscal year 1992 appropriations. These reductions and rescissions are discussed below by program.

Advanced Antisubmarine Warfare Target

For fiscal year 1993, the Navy requested $16.499 million under program element 603529N. The Advanced Antisubmarine Warfare (ASW) Target Program develops target capabilities for test and evaluation of ASW weapons and sensors and for use in fleet ASW training. Fiscal year 1993 funding for this program was requested to sustain two major projects—development of the Fast Deep Target and an upgrade to the MK-30 ASW target.

Results of Our Analysis

We identified $15.141 million in potential reductions to the fiscal year 1993 budget request because the Navy has decided to cancel both the Fast Deep Target and MK-30 Upgrade projects.

In March 1992, because of significant problems, the Chief of Naval Operations terminated the Fast Deep Target Program. He noted that a combination of alternatives such as submarines, targets, modeling and simulation could provide the testing needed to assess MK-48 advanced capability (ADCAP) and MK-50 torpedoes.

The end of the Fast Deep Target Program also resulted in the Navy assessing its plans to upgrade the current ASW fleet training target. According to Navy officials, the assessment showed that it is not technically practical or cost-effective to upgrade the current fleet ASW training target, the MK-30.

Instead, the program office plans to develop a new ASW target. According to program officials, meeting future fleet ASW training needs will require developing a new training target.

As of August 24, 1992, the Chief of Naval Operations was reviewing a program proposal for the new target and an operational requirement was being developed.

The program office is planning to present the new target program for a milestone I, demonstration and validation decision in January 1993. However, we believe that because this new target program is considered a

new development effort, it should start in the concept exploration and definition phase that commences milestone 0. We believe the reduced submarine threat affords the Navy time to more fully develop alternative concepts that could satisfy any mission need that might be approved by the Chief of Naval Operations. Program officials believe that, because of the extensive planning conducted during the past several months and the fact that the target has been planned since the early 1980s, the program should be allowed to proceed to demonstration and validation.

If the program is approved for demonstration and validation, the program office plans to award two contracts to foster competition and allow the Navy a greater selection of trainer designs.

In August 1992, the Navy's program office was planning to use the $16.5 million requested in the following manner.

Table I.1: Program Office's Revised Spending Plans for Fiscal Year 1993 Funds

Dollars in millions

Tasks	Amount
Fast Deep Target termination costs	$1.358
Contract support	.358
Travel	.020
System engineering/milestone I preparation	.450
Demonstration and validation phase contracts	10.520
Technical direction	1.493
Transducer development[a]	2.000
Test and evaluation	.300
Total	**$16.499**

[a]Preplanned product improvement effort.

While developing the new target, the Navy is undertaking a high-risk concurrent development effort to improve the target's capabilities. This effort is not critical to the success of the new target. The Navy program manager is proposing to separately develop a very low frequency transducer system that can be incorporated into the new target during full-scale development. According to a program official, this $2.0 million transducer development is believed to pose high risks that can be mitigated by pursuing the effort as a separate project. If the planned improvement is unsuccessful, the Navy will still be able to field an ASW warfare target that meets fleet training needs.

Because the Fast Deep Target and the MK-30 target upgrade programs have been cancelled, RDT&E funding requested by the Navy for fiscal year 1993, beyond the $1.358 million in contract termination costs, is no longer needed to execute the originally planned program. In our view, commitment to a new acquisition, in the form of awarding demonstration and validation contracts, is not demonstrably the best use of funds that were originally requested for other purposes. Accordingly, the Congress may choose to appropriate $15.141 million less funding than requested for the Advanced ASW Target Program.

Surface Antisubmarine Warfare

For fiscal year 1993 the Navy requested $70.194 million under program element 603553N. The Surface ASW Program develops the technology for surface ship ASW advanced combat systems and other projects. Most development effort conducted under the program has supported the AN/SQY-1 surface combat control system.

Results of Our Analysis

We identified $19.1 million in potential reductions to the fiscal year 1993 budget request.

On April 3, 1992, the Navy restructured the Surface ASW Program, directing most future development efforts to address shallow water threats. According to a Navy program official, the Navy restructured this program because the submarine threat has changed and the AN/SQY-1 Program was terminated in February 1992. In addition, the Navy is placing reduced emphasis on development of battle group multi-static sonar.

Of the $70.194 million, $19.1 million originally requested for ship operations, multi-static array development, and other purposes will not be used as planned. Instead, the program office now plans to use the money to start developing a new low-frequency active sonar system for surface combatant ship shallow water operations. This project is expected to result in an advanced technology development model by about 1997.

Funds are no longer needed to carry out the Navy's original plans. Although the Navy may consider the shallow water project to be a high-priority area, it did not justify this program in its budget submission. Accordingly, the Congress may choose to appropriate $19.1 million less than the Navy requested for fiscal year 1993.

MK-48 ADCAP Torpedo

For fiscal year 1993, the Navy requested $29.553 million under program element 603691N. The MK-48 ADCAP Torpedo product improvement programs are focused on upgrading the software, warhead, and propulsion system. Of the amount requested, $13.6 million is for upgrading the propulsion system.

Results of Our Analysis

We identified $13.6 million in potential reductions to the fiscal year 1993 budget request.

Our September 1992 report[1] to the Secretary of Defense details our reasons for recommending that the Navy not proceed with the propulsion upgrade effort. In January 1992, the Navy stated that without an improved propulsion system, the torpedo will meet the operational effectiveness requirement of the SSN-21 class submarine. We indicated that the upgrade may only result in limited benefits to a 688-class submarine because it has yet to prove the potential benefits of the upgrade to an SSN-688 submarine. As of June 29, 1992, Navy tests of the proposed upgrade and modeling using the SSN-688 submarine were incomplete and inconclusive. Furthermore, the propulsion upgrade will not lead to the Navy meeting its long-term torpedo noise reduction goals. To meet those goals, the Navy will probably have to design an entirely new propulsion system, and, in view of the reduced submarine threat to the United States, the Navy has the opportunity to conserve limited funds and continue its ongoing exploration of alternative technologies that might be exploited in some new propulsion system.

The Office of the Secretary of Defense (OSD) believes that the propulsion upgrade is necessary because of current threat capabilities, the benefits of the improvements to all platforms, and the status of ongoing research to support initiating acquisition of the next generation torpedo.

OSD also believes that ongoing work to develop a replacement for the current engine is not mature enough to initiate a new acquisition program at this time. To us, this set of circumstances justifies continuing ongoing research to reduce the risks associated with a possible future acquisition initiative, but it undercuts the rationale for continuing the propulsion upgrade work.

[1]Navy Torpedo Program: MK-48 ADCAP Propulsion System Not Needed (GAO/NSIAD-92-191, Sept. 10, 1992).

The Congress may wish to reduce the Navy's fiscal year 1993 request by $13.6 million and direct the Navy to continue its pursuit of future propulsion system technologies.

Surface Ship Torpedo Defense

For fiscal year 1993, the Navy requested $28.479 million under program element 603506N. The Surface Ship Torpedo Defense Program is comprised of two major development efforts—a U.S. national program and an international program.

The Navy requested $3 million for the national program in fiscal year 1993. Currently, that program is undergoing technical evaluation and an operational evaluation is scheduled immediately thereafter. Assuming both evaluations are successful, the program will enter full-scale production during fiscal year 1993.

The Navy budgeted $25.4 million in fiscal year 1993 for the international program. Started about 1988, that program is jointly managed and funded by the United States and United Kingdom and is in the concept definition phase of development. The program is currently executing a risk mitigation effort that extended its development by about 2 years; this effort was directed by the Assistant Secretary of the Navy. The program is scheduled to enter the demonstration and validation phase during the fourth quarter of fiscal year 1993.

Results of Our Analysis

We identified $13 million in potential reductions to the fiscal year 1993 budget request.

The Navy had planned to obligate about $13 million in demonstration and validation contract awards in July 1993. Since its budget request was submitted, the international program's schedule has been adjusted and the planned start of the demonstration and validation phase of the program has moved from the third to the fourth quarter of fiscal year 1993. Because both U.S. and United Kingdom approvals are needed to begin this phase, Navy officials stated that the approval could be delayed until the first quarter of fiscal year 1994.

Because of program delays, officials have already planned alternative uses for the funds requested for the demonstration and validation contracts They now plan to use only about $3.5 million for fourth quarter demonstration and validation activities. Of the remaining $9.5 million, the

program office plans to use $6.5 million to complete concept phase risk mitigation efforts. In addition, the Navy plans to spend $3 million to continue decoy feasibility studies. The Navy now plans to separate or "break out" the decoy development from the overall Surface Ship Torpedo Defense Program effort. According to Navy officials, this approach allows the Navy to place the decoy into the fleet much earlier than the international program's projected initial operational capability date.

Because of recent program delays, the Navy may not need all the fiscal year 1993 funding requested to execute the planned program that was the basis of the budget proposal. Accordingly, the Congress may choose to appropriate $13 million less than the Navy requested.

Acoustic Search Sensors

For fiscal year 1993 the Navy requested $47.53 million under program element 604261N, and $27.1 million was appropriated the previous year. The Acoustic Search Sensors program funds three development projects: (1) the Expendable Reliable Acoustic Path Sonobuoy, (2) the Air Deployable Active Receiver, and (3) ASW Sensors. The objective of the ASW Sensors project is improved mission effectiveness through development of hardware and software for acoustic systems, sensors, and data processing, recording and display equipment. The project presently consists of two development efforts—the Acoustic Intercept System and the Generic Acoustic Simulator System.

The Acoustic Intercept System is a new subsystem to exploit any acoustic signals produced by a target. It is part of a new generation of acoustic systems required to defend against foreign strategic and attack submarines that have become stealthier through quieting propulsion and auxiliary equipment.

Results of Our Analysis

We identified $4.4 million in potential rescissions from fiscal year 1992 appropriated funds and $16.4 million in potential reductions to the fiscal year 1993 budget request.

The Navy is restructuring the Acoustic Intercept System development. As a result, the Navy will not award a planned fiscal year 1992 engineering and manufacturing development contract and plans to reprogram the $4.4 million originally reserved for this purpose. In addition, it does not plan to spend the $16.4 million in fiscal year 1993 funds as originally intended.

Instead, the program office now plans to use $7 million in fiscal year 1993 for the restructured project.

The Navy will not need $4.4 million in fiscal year 1992 funds for the Acoustic Intercept System engineering and manufacturing development contract; accordingly, the Congress may choose to rescind these funds. Also, Navy does not plan to use $16.4 million of the funding requested for the Acoustic Search Sensors program in fiscal year 1993. The Congress may choose to reduce funding accordingly. If, alternatively, the Congress elects to support the restructured Acoustic Intercept System project, the Navy will need $9.4 million less than the amount it requested for 1993, and the Congress may choose to make a corresponding reduction in the amount it appropriates for fiscal year 1993.

Electric Drive System

For fiscal year 1993 the Navy requested $99.177 million under program element 603573N.

In February 1992, the Navy changed both the name and substance of this program. Previously, the program was almost exclusively directed toward development of a prototype system composed of state-of-the-art power turbines, propellers, electric motors, electric transmission technology, electric generators, and monitoring and control devices. This prototype was being designed to address future needs in many different areas such as quietness, fuel efficiency, survivability, supportability, and power needs. Congress has supported continuation of that effort for several years, but last year, because of the size of the investment that this development represented, the Senate Committee on Appropriations called for it to be managed as a major acquisition program and insisted that the Navy designate a ship on which the prototype system would be installed. Through fiscal year 1991, the electric drive effort had principally consisted of an effort under a major contract awarded in November 1988, but late last year that contract was scaled back and the electric-motor design effort that had been its centerpiece has been deferred and relegated to the status of a backup option. Application of program resources for the near term were sharply refocused.

Following award of a new major contract last December, the Navy has changed the name of this program to the "Advanced Surface Machinery System" (ASMS) and redefined the effort that it had been pursuing under the 1988 contract. The primary objective, at least for the next few years, is no longer development of an integrated electric drive system; rather, it is

adaptation of an existing jet engine and related technology to drive an otherwise conventional power train. This intercooled recuperated (ICR) engine is expected to be a lower risk undertaking and to provide about 30 percent greater fuel efficiency compared to existing engines. Selected elements of the ASMS, particularly the ICR engine, are planned for introduction on "target ships" around the year 2000.

In addition to the effort devoted to development of the ICR engine, Navy officials said the ASMS program will (1) develop a transmission for connecting the ICR engine to conventional ship propulsion machinery, (2) fund demonstration of advance technology electrical motors, (3) design turbines, generators and transmissions for use with electrical-motor driven propulsion systems, and (4) retain the option of developing a conventional electrical motor in the event the advance technology models would not be demonstrably superior.

Results of Our Analysis

We have identified potential reductions from the Navy's fiscal year 1993 request of $99.177 million.

Last year, the Congress expressed concern about management of the Electric Drive Program, then expected to cost in excess of $1 billion. The Congress significantly reduced the program's fiscal year 1992 funding request. The Senate Committee on Appropriations report, moreover, directed the Navy to designate the effort as an acquisition category program, which would bring the program under established management controls such as milestone reviews and independent cost estimates. The Committee also called for the Navy to dedicate a ship or platform to the system for developmental testing.[2]

Navy officials acknowledged to us that these mandates have not yet been satisfied, but they report progress in that direction. The program manager said that measures are underway to comply fully with the Committee's direction. He asserted that the program office has submitted documentation to the Assistant Secretary of the Navy for Research, Development and Acquisition for designation as an acquisition category program. The program office advised us that it plans to update a previous cost analysis in anticipation of a Milestone II decision at a yet-unspecified date. A decision on designating a ship to install the ASMS equipment for testing is also pending.

[2]Senate Report 102-154, September 20, 1991; pp. 265, 266, and 284.

The contract awarded in December 1991 calls for advance development of the ICR engine at a cost of $161 million, with $191 million in options for initial full-scale development models. However, the Navy has still not subjected the program to milestone reviews; obtained a comprehensive, independent cost estimate; or developed other pertinent program documentation, such as a test and evaluation master plan. Furthermore the target ship(s) or ship class(es) remain uncertain. Moreover, while it appears that the program's long-term research and development costs have been reduced from about $1 billion to about $700 million, the latter figure does not include the potential cost for full-scale development of an electric motor driven system in the time frame beyond the year 2000.

Without reliable estimates of both (1) the cost of acquiring the ICR engine and related technology and (2) the corresponding savings in operational cost that it might produce, it is our view that any return on the sizable investment this program represents is speculative at best. Accordingly, it would seem that the Senate Committee's concerns about this program are, at the very least, as reasonably justified as they were a year ago. Moreover, the substantial redirection of the program that has occurred in the meantime has validated those concerns and the rationale for prompt application of acquisition category program controls. Accordingly, the Congress may choose either to deny or to restrict obligation of the $99.177 million in fiscal year 1993 funding requested for the Electric Drive Program until appropriate acquisition category controls are in place.

Potential Reductions and Rescissions to the RDT&E, Defense Agencies Programs

We identified $22.3 million in potential reductions to the Defense Agencies' fiscal year 1993 RDT&E budget request. We also identified $1.2 million in potential rescissions from fiscal year 1992 appropriations. These reductions and rescissions are discussed below.

Unmanned Aerial Vehicles Joint Program

The unmanned aerial vehicles joint program consist of the short-range, medium-range, and close-range unmanned aerial vehicles projects and other management/development support activities. The Navy, Air Force, and Marine Corps have joined together to acquire the medium-range unmanned aerial vehicles for use as tactical aerial reconnaissance platforms. The medium-range unmanned aerial vehicles are to be equipped with the advanced tactical air reconnaissance system and expected to be fully autonomous, high speed, survivable, and reusable. They will provide real-time reconnaissance images, and can be launched from either the air or ground and operate in chemical and biological environments.

The advanced tactical air reconnaissance system program is being developed by a separate contractor and is managed by the Air Force. It will provide the medium-range unmanned aerial vehicles with either a "low altitude electro-optic" sensor or an "infrared line scanner" sensor.

Results of Our Analysis

The Navy plans to use $22.3 million in fiscal year 1993 to purchase developmental air reconnaissance units for the medium-range unmanned aerial vehicle project. It had originally planned to order these units in fiscal year 1994 but decided to order them earlier after a Defense Acquisition Board decision shifted funding from the short-range unmanned aerial vehicles to the medium-range unmanned aerial vehicles. However, the Air Force now anticipates a 1-year delay in program development, which will cause a reciprocal delay in delivery of the units. Navy could return to its original schedule and order the units in 1994 after the development problems have been solved.

Because of these development delays, Navy does not plan to obligate $1.2 million from the fiscal year 1992 appropriation for testing the advanced tactical air reconnaissance system.

The Congress may wish to reduce the Defense Agencies fiscal year 1993 budget request by $22.3 million and rescind $1.2 million from the 1992 appropriation.

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