



National Security and
International Affairs Division

B-276811

August 6, 1997

The Honorable William S. Cohen
The Secretary Of Defense

Subject: Program Status: Naval Surface Fire Support

Dear Mr. Secretary:

The Navy admits that it currently has no credible surface fire capabilities to support forced-entry from the sea and inland operations by Marine Corps and Army forces. To address this deficiency, the Navy has initiated a two-phased Naval Surface Fire Support program. We reviewed this research and development program, with the objectives of (1) determining the status of the Navy's near-term phase, consisting of a modified 5-inch gun, extended-range guided munition, and warfare control system, and (2) identifying issues surrounding the long-term phase, which is needed to address currently stated requirements. The purpose of this letter is to provide the results of our review. We are making no recommendations.

BACKGROUND

Since 1992, when it retired the last of its battleships, the Navy's surface fire support capabilities have been limited to 5-inch/54 caliber guns and munitions that lack adequate range, accuracy, and lethality. Targeting and fire control are still done manually, and the Navy acknowledges that the communications links between fire support ships and their customers are inadequate. A growing threat from sea-skimming antiship missiles is forcing fire support ships to operate at ever increasing ranges from shore, further limiting the utility of existing guns.

The Navy plans to address its surface fire support capability deficiencies in two phases, near- (scheduled completion by fiscal year 2001) and long-term (time frame still being defined). During the near-term phase, the Navy is developing (1) a modified version of the 5-inch gun currently used on surface combatant ships, (2) an extended range guided 5-inch munition, and (3) a shipboard surface fire support warfare control system consisting of computer resources and communication interfaces designed to automate battle management functions. Using these new systems, the Navy expects to be able to accurately engage shore targets to a range of 10-63 nautical

159 105

miles. The Navy said it is pursuing the near-term phase because it offers the fastest and least expensive way to improve surface fire support. In the long-term phase, the Navy plans to develop a 155-millimeter vertical gun for advanced ships (VGAS) with an extended range guided munition and adapt the Army Tactical Missile System and/or the Navy Standard Missile for land attack missions.

RESULTS IN BRIEF

The near-term phase of the Naval Surface Fire Support program is on schedule. However, technical issues may delay achievement of operational capabilities scheduled for fiscal year 2001, the required date. The full capabilities of the near-term program will not be available until the Naval Surface Fire Support warfare control system is defined and funded. The near-term phase of the program is not expected, or designed, to fully meet surface fire support requirements recently established by the Marine Corps, but the long-term phase is intended to address them. The long-term phase has not been fully defined. Funding uncertainties exist for both the near- and long-term phases of the Naval Surface Fire Support program.

THE NEAR-TERM PHASE IS ON TRACK BUT COULD EXPERIENCE DELAYS

Development of the modified 5-inch gun and the extended-range guided munition is currently on track. Navy and contractor officials have acknowledged that the schedule is optimistic, but they express confidence that it can be achieved by the date of fiscal year 2001, as directed by the Chief of Naval Operations. There are technical risks associated with concurrent development of the components of the extended-range guided munition that must be able to survive the launch pressures from the gun. For example, the rocket motor and motor casing development is high risk, as the propellant charge could damage the motor or the motor casing when the gun is fired. If the rocket motor casing needs to be reinforced, it may limit the amount of propellant that can be packed into the projectile, which may reduce its range. A number of risk reduction designs are being developed and tested.

The Naval Surface Fire Support Warfare Control System is Still Being Defined

The modified 5-inch gun and extended range guided munition can be employed without the warfare control system. However, unless the warfare control system is developed, the capabilities of the modified 5-inch gun and extended range guided munition cannot be fully integrated with other weapons. The warfare control system is still being defined, and only draft operational requirements have been produced. Its envisioned capabilities are generally referenced in the NSFS program mission needs statement. The warfare control system will be placed in the Advanced Tomahawk

Weapons Control System. Eventually, it is expected to be integrated with the AEGIS¹ combat system. Because the warfare control system will not be available for some time, the Navy plans to adapt the Army's Automated Deep Operations Coordination System software to perform automated Naval Surface Fire Support mission planning and control functions as an interim solution. According to program officials, this adaptation is expected to be available by the time the modified gun and extended range guided munition are fielded.

Funding Uncertainties May Delay Program Execution

A number of funding issues may delay the near-term phase and attainment of required operational capabilities. Development of the modified 5-inch gun and the extended range guided munition is currently funded. However, no funds have been identified for procurement and, depending on the number of modified guns and munitions eventually produced, unprogrammed procurement costs could be significant. Ship modifications to accommodate the modified gun are only partly funded. At this time, no funds have been identified for development of the warfare control system.

The Navy plans to install the modified gun on the 26 new destroyers (DDG-51 class) which it plans to build. The Navy is developing one prototype gun and 570 extended-range gun munitions. The Naval Center for Cost Analysis has estimated the research and development cost to produce the prototype gun and the 570 munitions at about \$179 million. The estimated total cost of the near-term phase depends on the number of modified 5-inch guns and munitions that are eventually procured. The costs of procuring 27 modified guns (includes one training gun) is about \$366 million (average unit cost of \$12.35 million) and 8,000 extended range guided munitions is about \$359 million. Operational and support costs for 20 years are estimated to be an additional \$444 million.

The Navy had originally planned to install the modified guns on new destroyers and to backfit selected existing ships, but funding problems may force it to limit installation of the modified guns to new ships. However, a backfit program is again being considered. If a decision is reached to backfit the modified gun onto 61 additional ships, according to a Navy official responsible for program resources, an additional \$862 million over a 3-year period will be needed for ship modification and integration. The added cost of procuring extended range guided munitions for these 61 ships could be about \$2.6 billion, depending on the price of the munition at the time of procurement.

¹An integrated shipboard weapon system that combines computers, radars, and missiles to provide a defense umbrella for surface ships. The system is capable of automatically detecting, tracking, and destroying airborne, seaborne, and land-launched weapons.

While specific funding has been identified for developing the modified gun and extended range guided munition, no specific funding has been identified for development of the warfare control system. For fiscal year 1997, a Navy office responsible for program resources has set aside about \$2 million for warfare control system experiments and demonstrations and, according to its officials, may make an additional \$6 million available.

The fiscal year 1995-97 design and construction contracts for eight ships were awarded before the modified 5-inch gun design was defined. Only the cost of installing the first preproduction gun on the first of eight new destroyers is funded within the near-term phase. The cost of modifying the seven follow-on ships remains unfunded and must be paid by either the Navy's ship construction program (during construction) or other Navy procurement funds (post-construction) at approximately twice the cost. Design and construction contracts for the remaining 18 ships have not been awarded.

DECISIONS ABOUT THE LONG-TERM PHASE HAVE NOT BEEN MADE

The long-term phase of the Naval Surface Fire Support program is intended to comply with the Navy's cost and operational effectiveness analysis recommendation¹ and to address Marine Corps requirements that will not be met by the modified 5-inch gun and extended range guided munition development program. However, this phase is still being defined.

As we reported in 1995, the Navy's cost and operational effectiveness analysis recommended development of a 155-millimeter gun, in combination with missiles, as the best solution for meeting Naval Surface Fire Support requirements.² To that end, the long-term phase is intended to address those recommendations as well as requirements recently established by the Marine Corps, the Navy's primary surface fire support customer.

Although the Marine Corps has endorsed the near-term phase, it recently outlined additional surface fire support requirements that the modified 5-inch gun and extended range guided munition will not provide. These requirements include a capability for delivering a large volume of sustained fire against a variety of targets, a larger payload for increased lethality, a range beyond the 63 nautical miles expected of the 5-inch extended range guided munition, and supporting command and control systems that will enable the safe integration of fire support provided by a variety of sea-, air-, and land-based weapons. The Marine Corps also expressed concerns that at extended ranges the munition's lengthy time of flight would limit its responsiveness to calls for

²Naval Surface Fire Support: Navy's Near-Term Plan Is Not Based on Sufficient Analysis (GAO/NSIAD-95-160, May 19, 1995).

fire support. The Army is also a potential customer of naval surface fire support, but according to a responsible official, it has not developed any requirements.

As described by Navy officials, key elements of the long-term phase would include developing a 155-millimeter gun system and adapting the Army Tactical Missile System and/or the Navy Standard Missile for land-attack missions. By fiscal year 2003, the missile variants are planned to achieve initial operational capability and a vertical gun is to be demonstrated. The Navy plans to equip the next class of surface combatants, the DD-21 class, with vertical guns beginning about fiscal year 2008. The extended range guided munition technologies being developed within the near-term phase, along with technologies being examined by several separately funded advanced technology demonstration projects, are expected to be applicable in the long-term phase to develop other guided projectiles, including 155-millimeter and larger versions.

Despite these plans, Navy officials cautioned that no decision has been made on the specific weapon types or mix that may be developed during this program phase. The Naval Surface Fire Support program resource sponsor has proposed retiring seven older ships and using the savings generated by that action to fund the long-term phase. However, the Navy has not committed to this proposal. Except for about \$4 million for vertical gun and \$3 million for Navy Tactical Missile System development, the long-term phase is unfunded. However, according to a Navy official, the Five-Year Defense Plan contains about \$611 million for the long-term phase.

AGENCY COMMENTS

In commenting on a draft of this letter, the Department of Defense (DOD) generally concurred with the information presented. (See App. I) DOD also provided some technical suggestions and we have incorporated them in the text where appropriate.

We are sending copies of this letter to appropriate congressional committees; the Secretaries of the Army and the Navy; the Commandant of the Marine Corps; and the Director, Office of Management and Budget. We will make copies available to others on request. Please contact me at (202) 512-4383 if you or your staff have any questions concerning this letter.

Sincerely yours,



Katherine V. Schinasi
Associate Director, Defense Acquisitions Issues

Enclosure



ACQUISITION AND
TECHNOLOGY

OFFICE OF THE UNDER SECRETARY OF DEFENSE

3000 DEFENSE PENTAGON
WASHINGTON DC 20301-3000

22 JUL 1997

Ms. Katherine V. Schinasi
Associate Director, Defense Acquisition Issues
National Security and International
Affairs Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Ms. Schinasi:

This is the Department of Defense (DoD) response to the General Accounting Office (GAO) draft report, "Status of Naval Surface Fire Support," dated July 3, 1997 (GAO Code 707176 / OSD Case 1407).

The Department has reviewed the report and generally concurs. We have separately provided suggested technical changes for clarification and accuracy.

The Department appreciates the opportunity to comment of the draft report.

Sincerely,

George R. Schneiter
Director
Strategic and Tactical Systems

Enclosure



Ordering Information

The first copy of each GAO report and testimony is free. Additional copies are \$2 each. Orders should be sent to the following address, accompanied by a check or money order made out to the Superintendent of Documents, when necessary. VISA and MasterCard credit cards are accepted, also. Orders for 100 or more copies to be mailed to a single address are discounted 25 percent.

Orders by mail:

U.S. General Accounting Office
P.O. Box 6015
Gaithersburg, MD 20884-6015

or visit:

Room 1100
700 4th St. NW (corner of 4th and G Sts. NW)
U.S. General Accounting Office
Washington, DC

Orders may also be placed by calling (202) 512-6000 or by using fax number (301) 258-4066, or TDD (301) 413-0006.

Each day, GAO issues a list of newly available reports and testimony. To receive facsimile copies of the daily list or any list from the past 30 days, please call (202) 512-6000 using a touchtone phone. A recorded menu will provide information on how to obtain these lists.

For information on how to access GAO reports on the INTERNET, send an e-mail message with "info" in the body to:

info@www.gao.gov

or visit GAO's World Wide Web Home Page at:

<http://www.gao.gov>

**United States
General Accounting Office
Washington, D.C. 20548-0001**

**Official Business
Penalty for Private Use \$300**

<p>Bulk Rate Postage & Fees Paid GAO Permit No. G100</p>

Address Correction Requested
