Audit Report

OFFICE OF THE INSPECTOR GENERAL

HOTLINE ALLEGATION CONCERNING AN UNSOLICITED PROPOSAL ON A SONAR SYSTEM

Report No. 95-018 October 31, 1994

Department of Defense

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Acronyms

ASW	Anitsubmarine Warfare
FAR	Federal Acquisition Regulation
IIO	International Investment Organization
NAVSEA	Naval Sea Systems Command
NUWC	Naval Undersea Warfare Center

INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
400 ARMY NAVY DRIVE
ARLINGTON, VIRGINIA 22202-2884

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MEMORANDUM FOR ASSISTANT SECRETARY OF THE NAVY (FINANCIAL MANAGEMENT)

SUBJECT: Hotline Allegation Concerning an Unsolicited Proposal on a Sonar System (Project No. 4AL-8006)

Introduction

We are providing this report for your information and use. We performed the audit in response to a Hotline allegation made to the Inspector General, DoD, relating to an unsolicited proposal on a conceptual long-range sonar system that would be towed by a surface combatant ship. The complainant alleged that the Navy did not properly evaluate the unsolicited proposal.

Audit Results

The allegation was unsubstantiated. The Navy made an extensive evaluation of the unsolicited proposal. Based on the evaluation, the Navy concluded that the impact of the proposed sonar on the towing ship, as well as the performance of the sonar, was unacceptable for long-range tactical surface combatant antisubmarine warfare (ASW) missions. Further, various factors showed that the Navy correctly concluded that the proposed sonar was unacceptable for tactical ASW missions.

Soon after the evaluation, the Navy refocused its requirements for tactical ASW systems from systems for use in deep waters to systems for use in littoral (coastal) waters. Therefore, the Navy no longer had a critical requirement for the proposed system's alleged capability. If the Navy reestablishes a requirement for such a capability, the company that offered the unsolicited proposal would have an opportunity to bid competitively on the requirement.

Objective

The audit objective was to determine the validity of the Hotline allegation that we received concerning the evaluation of the unsolicited proposal on the sonar system.

Scope and Methodology

To satisfy the audit objective, we evaluated the Navy's actions on the unsolicited proposal. To evaluate those actions, we used criteria in Federal Acquisition Regulation (FAR) Subpart 15.5, "Unsolicited Proposals." We also reviewed documentation dated from June 1989 through May 1994, including the

unsolicited proposal, correspondence files related to the proposed system, the Naval Undersea Warfare Center's (NUWC) evaluation of the proposal, clarifications that the proposing company made to its proposal based on the NUWC's evaluation, naval publications, and documentation on various ASW systems. Additionally, we interviewed officials at the NUWC to ensure a complete understanding of the scope, techniques, and results of its evaluation. Last, we interviewed officials in various offices in the Navy to validate the conclusions stemming from the NUWC's evaluation. Enclosure 1 lists the organizations that we visited or contacted during the audit. The Technical Assessment Division, Office of the Inspector General, DoD, provided engineering assistance by analyzing the unsolicited proposal, the NUWC evaluation, and the proposing company's clarifications to the proposal. We did not use computer-generated data to evaluate the allegation.

We did this program audit from January 1994 through July 1994, in accordance with the auditing standards issued by the Comptroller General of the United States as implemented by the Inspector General, DoD.

Internal Controls

We did not assess internal controls because the audit was limited to the allegation by the Hotline complainant.

Prior Audits and Other Reviews

No audits or reviews in the past 5 years directly related to the allegation.

Background

The International Investment Organization (IIO) submitted an unsolicited proposal, dated June 20, 1991, on a sonar system to the Navy. The proposal presented an engineering development model of a low-frequency, active, long-range, tactical sonar system that would be towed by a surface combatant ship. The IIO referred to the proposed sonar system as the Siwecki Sonar System or the S-3 Sonar System.

On May 26, 1993, the Inspector General, DoD, received a Hotline allegation alleging that the Navy did not properly evaluate the unsolicited proposal.

FAR Subpart 15.5 specifies the criteria that Government Agencies should use in evaluating unsolicited proposals. The Subpart states that Government Agencies shall establish procedures for controlling the receipt, evaluation, and timely disposition of proposals. The Subpart also states that a valid unsolicited proposal must:

- o be innovative and unique,
- o be independently originated and developed by the offerer,

o be prepared without the Government's supervision,

o include sufficient detail to permit a determination that the Government's support could be worthwhile and the proposed work could benefit the Agency's research and development or other mission responsibilities, and

o not be submitted before a requirement that can be acquired by competitive means is established.

Additionally, the Subpart states that when performing a comprehensive evaluation of an unsolicited proposal, evaluators shall consider the following factors:

o unique and innovative methods, approaches, or concepts demonstrated by the proposal;

o overall scientific, technical, or socioeconomic merits of the proposal;

o potential contribution of the effort to the Agency's mission;

o the offerer's capabilities, related experience, facilities, techniques, or unique combinations of these that are integral factors for achieving the objectives of the proposal; and

o the qualifications, capabilities, and experience of the proposed principal investigator, team leader, or key personnel who are essential for achieving the objectives of the proposal.

Discussion

Chronology. The Hotline complainant was incorrect in stating that the Navy did not properly evaluate the unsolicited proposal on the S-3 Sonar System. The following chronology shows that the Navy extensively evaluated the unsolicited proposal although the FAR did not require it to do so. Further, based on its evaluation, the Navy concluded that the S-3 Sonar System was unacceptable for surface combatant tactical ASW missions.

o On June 20, 1991, the IIO submitted an unsolicited proposal on the S-3 Sonar System to the Naval Sea Systems Command (NAVSEA). This unsolicited proposal was not the first the IIO submitted to the Navy on the S-3 Sonar System. The IIO first proposed the S-3 Sonar System in 1989.

o On September 10, 1991, the NAVSEA returned the unsolicited proposal to the IIO stating that FAR Subpart 15.503 (c)(5) precludes an unsolicited proposal from being submitted after an Agency has established a requirement that can be satisfied by competitive means. However, persistent letters and presentations by the IIO on the S-3 Sonar System generated inquiries from congressional members. As a result, the NAVSEA requested that the NUWC perform an internal evaluation of the technical merit of the proposed S-3 Sonar System.

o On November 6, 1992, the NUWC issued its internal evaluation report on the proposal to the NAVSEA. Engineers and scientists who worked in the NUWC's Surface Ship ASW Directorate, the NUWC's Combat Systems Analysis Department, and the Naval Surface Warfare Center's Carderock Division evaluated the proposal. The engineers and scientists used standard tools and analysis techniques to evaluate the S-3 Sonar System at multiple sonar and target depths in six different ocean environments. A significant portion of the analyses was based on assumptions about the proposed design because the proposal did not provide sufficient detail to establish a firm engineering baseline from which to do the analyses. The evaluation cost the Navy $61,593.

o In early 1993, the NAVSEA provided the IIO with a copy of the NUWC's report on the evaluation of the proposed S-3 Sonar System. The report stated that the S-3 Sonar System was unacceptable for long-range tactical ASW missions primarily due to its operational impact on surface combatant ships that would tow the system and the projected performance of the system.

Ship Impact. A surface combatant has missions in three areas: air, surface, and subsurface. Due to significant reductions in the Navy's force structure, the Navy needs to maintain a versatile and multi-mission fleet. As such, the Navy is using surface ship combatants in small groups or even individually. Also, the Navy could use combatants to perform lone strategic-strike missions, enabling battle space dominance while executing littoral missions or operating jointly with forces ashore in a power-projection role.

The IIO proposed that the Navy use three ships (FFG-7, FF-1052, and DD-963) to tow the S-3 Sonar System. The NUWC concluded that only the DD-963 could tow the S-3 Sonar System because of its large size and in-water mass and because of handling equipment issues. The NUWC also concluded that the S-3 Sonar System could seriously effect the Navy's ability to carry out tactical missions that involved the DD-963 Destroyer. As for the impact of the S-3 Sonar System on the DD-963, the NUWC concluded that the speed of the DD-963 Destroyer would be reduced significantly when towing the S-3 Sonar System; the maximum speed (survival speed) would be reduced from 32 knots to 27 knots. Further, the range or endurance of the DD-963 Destroyer would be reduced by 35 percent and the number of at-sea refuelings would double. The NUWC also concluded that the S-3 Sonar System presented extraordinary risk with respect to safety, handling, operability, reliability, and maintainability.

Sonar Performance. The Navy maintains that a tactical surface combatant sonar system must be able to provide quick, accurate sonar search; detection; classification; tracking; and localization capabilities over a wide variety of tactical environments. The tactical surface combatant sonar system must provide many data samples from sector revisits to correlate successive detections and must be able to simultaneously track multiple targets. A tactical sonar system must minimize gaps in coverage to reduce vulnerabilities to countermeasures and ensure weapon accuracy.

According to the unsolicited proposal, the S-3 Sonar System was designed to provide the surface ship with a low-frequency active sonar that could search, detect, classify, track, and localize a target within 105 nautical miles of the surface ship. The basis of the proposed operation was very narrow pencil-shaped beams to scan the ocean acoustically, subsector by subsector.

The NUWC's evaluation found that the S-3 Sonar System required an unacceptable length of time to search the 105-nautical mile range. More specifically, the NUWC confirmed that the S-3 Sonar System took 45 minutes as stated in the proposal to complete its search of all subsectors for targets 105 nautical miles from the sonar. Because a minimum of 45 minutes passes between interrogations of subsectors, target submarines can move a considerable distance between sonar pulses, making it impossible to correlate successive detections. Also, target submarines could perform evasive maneuvers during the 45-minute gaps of coverage. As a result, the NUWC concluded that the search rate of the S-3 sonar system did not provide enough data for fast, reliable target tracking due to the long time between subsector revisits.

IIO's Assessment of NUWC's Evaluation

After being informed that its unsolicited proposal was unacceptable, the IIO assessed NUWC's evaluation. On May 10, 1993, the IIO provided additional comments to the Navy to clarify the parts of its proposal that the NUWC found unacceptable.

The Navy did not evaluate the clarifications the IIO provided primarily because it did not consider the IIO's comments on the NUWC's evaluation to be clarifications. The Navy considered the clarifications to be a new proposal because the clarifications represented changes to the unsolicited proposal apparently based primarily on the NUWC's evaluation. Further, the Navy was reluctant to evaluate the changes in the unsolicited proposal due to outstanding requests for proposals to satisfy a requirement for a long-range sonar system. The Navy believed that further evaluation of the unsolicited proposal might provide an unfair advantage to the IIO over other competitors. Additionally, since changes to the unsolicited proposal appeared to be based primarily on the NUWC's evaluation, it could be argued that the unsolicited proposal had been prepared with the Government's supervision, which violates the FAR.

Another factor in the Navy's decision not to evaluate the clarifications was the change in the Navy's warfighting priorities. The Navy has shifted from a Cold War, open-ocean, blue-water naval strategy to a regional littoral strategy. The Navy's current focus is primarily on developing weapon systems to fight in littoral areas.

Audit's Assessment of NUWC's Evaluation and Navy's Conclusions

The Navy's actions taken on sonar programs supported the NUWC's conclusions that the proposed S-3 Sonar System was not acceptable for tactical ASW missions. The Navy cancelled two long-range sonar programs due in part

to ship impact: the Multistatic Sonar System Program and the Stand-Alone Low-Frequency Active Sonar Program. The sonar systems in the two programs were substantially smaller and lighter than the proposed S-3 Sonar System, as shown on the following table.

Sizes and Weights of ASW Sonar Systems

Towed Source	Size Length x Height x Width (feet)	Weight (pounds)
Stand-Alone Low-Frequency Active Sonar	10 x 16 x 3	18,000
Multistatic Sonar System	30 x 14 x 5	37,000
Siwecki Sonar System	240 x 120 x 41	750,000

Additionally, officials in operational, training, and staff organizations within the Navy supported the NUWC's conclusion that the proposed S-3 Sonar System was not acceptable for tactical ASW missions. The officials explained that the mission effectiveness of a surface combatant towing the S-3 Sonar System would be so degraded that it would not be able to perform its tactical missions. For example, a surface combatant towing the S-3 Sonar System would be unable to keep up with the battle group when the battle group is underway at high speeds. The surface combatant would also have trouble maneuvering for the launching and landing of helicopters and in navigating in ports. Last, due to navigational constraints, the surface combatant would have difficulty providing firepower to support marine forces on the beach.

Other Factors Pertinent to the Unsolicited Proposal

Operational Need. Even if the Navy had concluded that the proposed S-3 Sonar System would be operationally effective for long-range surface combatant tactical ASW missions, the Navy no longer has a critical requirement for such capabilities. When the IIO submitted its unsolicited proposal, the Navy had planned to improve its long-range ASW detection capabilities. However, due to the collapse of the Soviet Union, the Navy's focus changed from improving capabilities to support long-range ASW missions in deep water to developing new ASW capabilities to support missions primarily in littoral waters.

Opportunities to Propose the S-3 Sonar System. During the period that the IIO submitted numerous unsolicited proposals on the S-3 Sonar System, the Navy requested proposals to satisfy requirements for several long-range sonar systems. Although the IIO had opportunities to respond to the requests and compete with other contractors, the IIO did not do so.

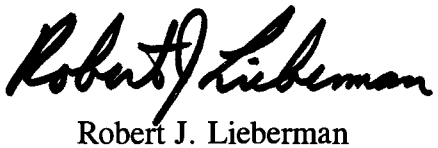
Conclusions

The allegation was unsubstantiated. The audit showed that the Navy made an extensive evaluation of the unsolicited proposal. The findings of the NUWC evaluation concluded that the proposed S-3 Sonar System was not acceptable for tactical ASW missions. The Navy's conclusion was supported by actions on other sonar programs and by officials in operational, training, and staff organizations within the Navy. Further, the Navy no longer has a critical requirement for the long-range detection capability proposed by the S-3 Sonar System.

Management Comments

We provided a draft of this report to the addressee on September 19, 1994. Because we made no recommendations, no comments were required of management and none were received. Also, no comments on this final report are required.

We appreciate the courtesies extended to the audit staff. The audit staff members are listed inside the back cover. If you have questions on this audit, please contact Mr. Rayburn H. Stricklin, Program Director, at (703) 604-9051 (DSN 664-9051) or Ms. Lisa E. Novis, Acting Project Manager, at (703) 604-9040 (DSN 664-9040). Enclosure 2 lists the distribution of this report.



Robert J. Lieberman
Assistant Inspector General
for Auditing

Enclosures

Organizations Visited or Contacted

Department of the Navy

Office of the Deputy Assistant Secretary of the Navy (Mine and Undersea Warfare), Washington, DC
Headquarters, Naval Sea Systems Command, Arlington, VA
Headquarters, Space and Naval Warfare Command, Arlington, VA
  Office of the Undersea Surveillance Program Directorate, Arlington, VA
Office of the Assistant Chief of Naval Operations (Surface Warfare), Washington, DC
Office of the Assistant Chief of Naval Operations (Undersea Warfare), Washington, DC
Office of Naval Intelligence (Undersea Warfare), Suitland, MD
Office of the Program Executive Office for Undersea Warfare, Arlington, VA
  Office of the Program Manager for Advanced Systems and Technology, Arlington, VA
  Office of the Program Manager for Surface Ship Antisubmarine Warfare Combat Systems, Arlington, VA
David Taylor Research Center, Bethesda, MD
Fleet Antisubmarine Warfare Training Center-Atlantic, Norfolk, VA
Naval Undersea Warfare Center Detachment, New London, CT
Operational Test and Evaluation Force, Norfolk, VA
Special Warfare Development Group, Norfolk, VA
Tactical Training Group, Atlantic, Norfolk, VA

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International Investment Organization

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House Subcommittee on Defense, Committee on Appropriations
House Committee on Armed Services
House Committee on Government Operations

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House Subcommittee on Legislation and National Security, Committee on Government Operations

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