

GAO

Fact Sheet to Congressional Requestors

December 1985

NAVY CONTRACTING

Navy's Plan to Second Source Aegis Shipyard Integration and Testing



128599



UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

NATIONAL SECURITY AND
INTERNATIONAL AFFAIRS DIVISION

December 2, 1985

B-221141

The Honorable Frank R. Lautenberg
United States Senate

The Honorable Jim Courter
House of Representatives

The Honorable H. James Saxton
House of Representatives

As you requested, we reviewed the Navy's plans to establish a second source for the Aegis combat system shipyard test and integration function. In subsequent discussions with your offices, we agreed to examine the (1) cost-effectiveness of second sourcing this function, (2) selection and role of Sperry Corporation as the second source, (3) effects second sourcing will have on the quality of the system, and (4) ability of other contractors to perform this function.

We briefed your staff on November 7, 1985, on the information contained in the appendix. This data was developed in cooperation with officials in the Office of the Assistant Secretary of the Navy, Shipbuilding and Logistics, and the Naval Sea Systems Command's Aegis Shipbuilding Program Office and with officials in RCA's Naval Systems Department located in Moorestown, New Jersey. We found that the Navy was only in the preliminary phase of implementing the Secretary of the Navy's mandate to establish Sperry Corporation as a shipyard integration and testing second source. As of the date of our briefing, the Navy's implementation plan had not been approved, required documents (sole source justification, request for proposal, et al.) had not been prepared, and the Navy had not established time frames to accomplish these actions. The results of our work are summarized below and described in more detail in the appendix.

COST-EFFECTIVENESS OF
SECOND SOURCING

The Navy has not completed a cost analysis of second sourcing the Aegis shipyard integration and testing function. Furthermore, the Assistant Secretary of the Navy, Shipbuilding and Logistics, stated that cost was not a deciding factor in the Secretary of the

Navy's decision to develop a second source. Aegis Shipbuilding Program Office officials stated that some duplication of effort will initially exist between Sperry and RCA test team personnel and some costs will be involved in setting up such a second source. However, they emphasized no additional facility or equipment costs would be incurred. Once the Sperry testing engineers become qualified, they will have sufficient opportunities to function as separate Aegis test team units at the various shipyards.

SPERRY'S SELECTION AND
ROLE AS THE SECOND SOURCE

On August 8, 1985, the Secretary of the Navy directed the Naval Sea Systems Command to establish Sperry Corporation as the second source for Aegis shipyard integration and testing. The Navy is implementing this directive. When asked if Sperry's involvement would extend beyond the shipyard, the Navy emphasized that it does not intend to establish Sperry or any other contractor as a second source for the Aegis weapon system shore integration and testing function located at Moorestown, New Jersey.

According to Navy officials, Sperry's involvement will be additive and will not replace existing Aegis shipyard test team members. This additional need is predicated upon an increase in the number of (1) Aegis type ships (CG-47 and DDG-51) completing construction and (2) existing Aegis ships undergoing overhauls.

The Navy's Aegis shipyard test team is comprised of personnel from several Navy field activities, a shipyard, and contractors, who are responsible for integrating, testing, and demonstrating the shipyard-installed Aegis combat system. According to the Navy, Sperry and RCA personnel will carry out assigned system level testing and integration tasks as team members during shipyard installation, sea trials, and post shakedown operations.

EFFECTS ON QUALITY OF
AEGIS WEAPON SYSTEM

Although the Navy has not yet defined Sperry's specific role for shipyard integration and testing, the Navy believes that quality will not be affected because Sperry (1) will be providing engineers with prior shipyard integration and testing experience and (2) test engineers will be trained and qualified by and in the same manner as RCA engineers.

OTHER POSSIBLE CONTRACTORS

According to the Navy, Sperry was the only contractor it considered as the second source for Aegis shipyard integration and testing responsibilities because Sperry had experience with complex shipyard test and integration functions (e.g., the FFG-7 Class Guided Missile Frigate) and had a pool of qualified shipyard engineers. The Assistant Secretary of the Navy, Shipbuilding and Logistics, acknowledged that other contractors, such as Raytheon and Ingalls Shipbuilding Division, had some experience in shipyard integration and could conceivably perform the integration and testing function, but Sperry could do it now and in a more expeditious manner than any other contractor.

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As agreed with your staff during the November 7, 1985, briefing, this letter and its appendix satisfy your initial needs. However, we will continue monitoring the Navy's plans to second source the shipyard integration and testing function as part of our annual budget review. Also, we will be available to update your offices as the need arises.

Navy officials reviewed a draft of the appendix and agreed with the facts in it.

As agreed with your staff, we will make this information available to other interested parties upon request. Should you need additional information, please let us know.


John Landicho
Senior Associate Director



THE NAVY'S PLANS TO SECOND
SOURCE THE INTEGRATION AND
TESTING FUNCTIONS OF THE
AEGIS COMBAT SYSTEM

NOVEMBER 7, 1985

ASSIGNMENT OBJECTIVES

--To ADDRESS CONGRESSIONAL CONCERNS ABOUT THE
NAVY'S PLAN TO ESTABLISH SPERRY CORPORATION AS THE
AEGIS COMBAT SYSTEM SECOND SOURCE FOR THE SHIPYARD
INTEGRATION AND TESTING FUNCTIONS. SPECIFIC

CONGRESSIONAL CONCERNS ARE:

--WHY SPERRY (DECISIONMAKING PROCESS)?

--WHAT WILL SPERRY DO?

--WILL IT BE COST-EFFECTIVE?

--CAN OTHERS DO IT?

--WILL IT AFFECT QUALITY OF AEGIS SYSTEM?

AGREEMENTS REACHED WITH
CONGRESSIONAL STAFF MEMBERS

WE AGREED TO PERFORM 3 TO 5 WEEKS OF WORK AND THEN BRIEF THE CONGRESSIONAL STAFF MEMBERS ON OUR EFFORTS TO DATE, DISCUSS THE BENEFITS OF FURTHER WORK, AND RECOMMEND EITHER A "GO OR NO GO" FOR FUTURE REVIEW EFFORT.

BACKGROUND

- THE AEGIS COMBAT SYSTEM (INTEGRATION OF ALL SHIP WEAPON SYSTEMS) IS INSTALLED ON THE CG-47 (TICONDEROGA) CLASS CRUISER AND WILL BE INSTALLED ON THE NEW DDG-51 (ARLEIGH BURKE) CLASS MULTIMISSION DESTROYER.
- THE AEGIS COMBAT SYSTEM IS COMPOSED OF THE AEGIS WEAPON (ONLY THE ANTI-AIR WARFARE SYSTEM COMPONENT); SHIPBOARD MISSILE SYSTEMS; FIRE CONTROL SYSTEMS; ELECTRONICS SYSTEMS AND RADAR; SONAR, AND NAVIGATION SYSTEMS.
- RCA IS THE AEGIS COMBAT SYSTEM AGENT RESPONSIBLE FOR DESIGNING, ENGINEERING, PRODUCING AND INTEGRATING SHORE AND SHIP TESTING.
- NAVY ACQUISITION STRATEGY CONSISTS OF
 - 27 CRUISERS AND
 - 29 DESTROYERS

ACQUISITION PROFILE

		FISCAL YEAR									
84 & PRIOR		85	86	87	88	89	90	91	92	93	94
CG	13	3	3	2	2	2	2	-	-	-	-
DDG	-	1	0	3	3	3	3	5	5	4	2

--INTEGRATION AND TESTING OF THE AEGIS COMBAT SYSTEM, INVOLVES
THE FOLLOWING THREE DISTINCT LEVELS OF WORK:

1) SYSTEM DESIGN.

-RCA DESIGNED AND DEVELOPED THE AEGIS WEAPON SYSTEM
AND INTEGRATED IT WITH THE ENTIRE AEGIS COMBAT
SYSTEM.

2) SHORE INTEGRATION AND TESTING OF THE AEGIS WEAPON
SYSTEM.

-RCA, MOORESTOWN, N.J., ASSEMBLES RCA-PRODUCED AND
GOVERNMENT-PROVIDED EQUIPMENT, WHICH TOGETHER
COMPRISE THE AEGIS WEAPON SYSTEM.

-RCA INTEGRATES AND TESTS THE EQUIPMENT AS A FINISHED
WEAPON SYSTEM.

-RCA PERFORMS THE NAVY'S ACCEPTANCE TEST.

-RCA DISASSEMBLES AND SHIPS AEGIS WEAPON SYSTEM TO
THE SHIPYARD.

3) SHIPYARD INTEGRATION AND TESTING OF THE AEGIS COMBAT SYSTEM.

-NAVY AEGIS TEST TEAM IS RESPONSIBLE FOR SHIPYARD INTEGRATION AND TESTING.

-TEST TEAM IS COMPRISED OF APPROXIMATELY 150 TEST ENGINEERS, TEST TECHNICIANS, AND MAINTENANCE TECHNICIANS FROM THE NAVY, THE SHIPBUILDER, AND WEAPON SYSTEM CONTRACTORS.

-NAVAL FIELD ACTIVITIES AND CONTRACTORS INVOLVED ARE

°NAVAL SHIP WEAPON SYSTEM ENGINEERING STATION,

°NAVAL SURFACE WARFARE CENTER,

°NAVAL SHIP SYSTEMS ENGINEERING STATION,

°INGALLS SHIPBUILDING DIVISION,

°RCA (47 TEST TEAM MEMBERS),

°RAYTHEON,

°COMPUTER SCIENCES CORPORATION, AND

°MARTIN MARIETTA.

AEGIS COMBAT SYSTEM SECOND SOURCE
PLAN DOES NOT ADDRESS INTEGRATION
AND TESTING AT EITHER SHORE OR
SHIPYARD LEVEL

SHORE INTEGRATION AND TESTING OF THE AEGIS COMBAT SYSTEM

--ACCORDING TO THE ASSISTANT SECRETARY OF THE NAVY FOR SHIPBUILDING AND LOGISTICS, THE NAVY WILL NOT CONSIDER ESTABLISHING SPERRY OR ANY OTHER CONTRACTOR AS A SECOND SOURCE FOR AEGIS SYSTEM INTEGRATING AND TESTING ACTIVITIES CURRENTLY PERFORMED BY RCA AT MOORESTOWN, N.J. THE NAVY'S RATIONALE IS AS FOLLOWS

- THE FUNCTIONS ARE TOO COMPLICATED AND IT IS NOT FEASIBLE TO TRANSFER THE TECHNOLOGY.
- IT IS NOT COST-EFFECTIVE.
- EXCESS PLANT CAPACITY TO MEET FORESEEABLE NAVY NEEDS FOR INTEGRATING AND TESTING THE AEGIS SYSTEM FOR THE CG-47 AND DDG-51 SHIP CLASSES EITHER ALREADY EXISTS OR IS UNDER CONSTRUCTION AT RCA, MOORESTOWN, N.J.
- RCA'S CRUISER PTC FACILITY CAN CURRENTLY INTEGRATE AND TEST FOUR CRUISERS EACH YEAR.
- RCA'S DESTROYER PTC FACILITY, WHEN CONSTRUCTION IS COMPLETE, WILL BE ABLE TO INTEGRATE AND TEST FOUR DESTROYERS EACH YEAR.

SHIPYARD INTEGRATION AND TESTING
OF THE AEGIS COMBAT SYSTEM

WHAT WILL SPERRY DO?

- ACCORDING TO NAVY OFFICIALS, SPERRY CORPORATION WILL BE GIVEN A FIXED-PRICE CONTRACT TO PROVIDE SYSTEM ENGINEERS TO (1) BECOME MEMBERS OF THE AEGIS TEST TEAM AT THE SHIPYARD AND (2) PERFORM TASKS AT THE AEGIS EDUCATIONAL AND AEGIS COMBAT SYSTEMS CENTERS.
- SPERRY EFFORT WILL BE ADDITIVE AND WILL NOT REPLACE EXISTING TEAM MEMBERS (I.E., SPERRY WILL BE PERFORMING SIMILAR/SAME FUNCTIONS AS RCA).

WHY SPERRY (DECISIONMAKING PROCESS)?

- ACCORDING TO THE ASSISTANT SECRETARY OF THE NAVY FOR SHIPBUILDING AND LOGISTICS, THE NAVY IS RESPONDING TO STATED CONGRESSIONAL DESIRES TO SECOND SOURCE VARIOUS ASPECTS OF THE AEGIS SYSTEM AND SPERRY IS UNIQUELY QUALIFIED BASED ON ITS PRIOR SHIPYARD TESTING EXPERIENCE.
- ACCORDING TO THE AEGIS PROGRAM OFFICE, THE SPERRY CORPORATION WAS THE ONLY CONTRACTOR THAT HAD EXPERIENCE WITH COMPLEX SHIPYARD TEST AND INTEGRATION FUNCTIONS (FFG-7) AND THAT HAD A POOL OF OVER 100 QUALIFIED SHIPYARD ENGINEERS TO DO THE REQUIRED WORK.
- NO OTHER CONTRACTORS WERE ACTIVELY CONSIDERED BY THE NAVY.
- THE NAVY HAS NOT YET DECIDED WHICH OF THE SEVEN EXCEPTIONS TO THE COMPETITION IN CONTRACTING ACT (CICA) OF 1984 IT WILL USE TO JUSTIFY NOT OPENING THE CONTRACT TO COMPETITION.
- ACCORDING TO THE PROGRAM OFFICE, THE MOST LIKELY JUSTIFICATION FOR NOT COMPETING THE CONTRACT WOULD BE TO ESTABLISH OR MAINTAIN AN INDUSTRIAL BASE OR TO PROTECT THE NATIONAL INTEREST.

CAN OTHER CONTRACTORS DO THE JOB?

--ACCORDING TO THE AEGIS PROGRAM OFFICE, ALTHOUGH OTHER CONTRACTORS SUCH AS RAYTHEON, INGALLS SHIPYARD (LITTON CORPORATION), AND BATH IRON WORKS COULD PERFORM THE JOB, SPERRY COULD PERFORM THE SECOND SOURCING INTEGRATION AND TESTING FUNCTION IN A BETTER AND MORE EXPEDITIOUS MANNER.

WILL IT BE COST-EFFECTIVE?

--THE NAVY HAS NOT COMPLETED A COST ANALYSIS NOR DOES THE NAVY CONSIDER COST AS A DRIVING FACTOR. HOWEVER, THE NAVY DOES NOT BELIEVE THERE ARE SIGNIFICANT COSTS INVOLVED BECAUSE:

--NO ADDITIONAL FACILITY OR EQUIPMENT COSTS WILL BE INCURRED.

--ALTHOUGH DUPLICATION OF EFFORT WILL INITIALLY EXIST AMONG SPERRY AND RCA TEST TEAM PERSONNEL WITH SOME TRAINING AND OTHER INCIDENTAL COSTS, ONCE THE SPERRY PERSONNEL BECOME QUALIFIED, THERE WILL BE SUFFICIENT DEMAND FOR THEM TO FUNCTION AS SEPARATE AEGIS INTEGRATION AND TEST TEAM UNITS AT THE VARIOUS SHIPYARDS, THUS OFFSETTING INITIAL DUPLICATION COSTS.

WILL THE NAVY SHIPYARD PLAN AFFECT QUALITY?

--THE NAVY BELIEVES THAT QUALITY WILL NOT BE AFFECTED
BECAUSE SPERRY ENGINEERS (1) HAVE EXPERIENCE IN PRIOR
SHIPYARD SYSTEMS INTEGRATION AND TESTING AND (2) ENGINEERS
WILL BE TRAINED AND QUALIFIED BY AND IN THE SAME MANNER AS
RCA'S ENGINEERS.

"NO GO" FOR
FUTURE WORK

FULL ANALYSIS OF THE OBJECTIVES IS NOT FEASIBLE AT THIS TIME
BECAUSE:

- THE NAVY PLAN HAS NOT BEEN APPROVED BY THE SECRETARY OF
THE NAVY.
- THE REQUEST FOR PROPOSAL (RFP), WHICH WAS TO BE RELEASED IN
SEPTEMBER 1985 FOR SPERRY'S WORK, HAS BEEN DELAYED.
- THE JUSTIFICATION REQUIRED UNDER THE 1984 COMPETITION IN
CONTRACTING ACT AS TO NEED, EXCEPTION TO COMPETITION, AND,
CERTIFICATION STATING THAT THE PRICE IS FAIR AND REASONABLE
HAS NOT BEEN PREPARED.
- THE NAVY HAS NOT ESTABLISHED TIME FRAMES OR MILESTONES
FOR RELEASING THE REQUIRED DOCUMENTS OR AWARDING THE SPERRY
CONTRACT.
- THE NAVY HAS ONLY ADDRESSED INITIAL IMPLEMENTATION OF THE
SECNAV LETTER AND THE PLAN'S TOTAL IMPACT IS NOT KNOWN.

GAO DID NOT ATTEMPT TO ADDRESS WHETHER OF NOT
THE NAVY COMPLIED WITH CONGRESSIONAL DIRECTION
CONTAINED IN PUBLIC LAW 98-473 DATED OCTOBER 12,
1984, ON SECOND SOURCING FOR THE AEGIS SYSTEM

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