GAO

United States
General Accounting Office
Washington, D.C. 20548

National Security and
International Affairs Division

B-197665

May 4, 1987

The Honorable Herbert H. Bateman
The Honorable Dan Daniel
The Honorable Norman Sisisky
House of Representatives

This report responds to your April 1, 1986, inquiry on the award of a fiscal year 1986 contract to Electric Boat, a division of General Dynamics Corporation. A fixed-price incentive contract was awarded for the construction of four SSN 688 Class nuclear attack submarines.

Specifically, you asked us to examine the fiscal year 1986 procurement process to ascertain (1) if the proposed prices were realistic, (2) what the cost and national security consequences would be if they were not, (3) what assurances, if any, exist that the Navy will obtain its four 688 submarines within the contract price, and (4) how the actual costs of performing the contract will be monitored. We also considered your concerns about Electric Boat's fiscal year 1985 contract price in our work.

We found that the Navy had analyzed the proposed contractors' prices by performing a price analysis. Such an analysis is permissible when adequate price competition exists. The analysis basically consists of various comparisons of prices to determine whether they are fair and reasonable. According to the Navy, this analysis showed that Electric Boat's price compared favorably not only with its competitor's price but also with prior years' prices.

An assessment of cost realism was not required, nor was it done in evaluating the proposed prices. Our analysis of Electric Boat's fiscal year 1986 contract price showed that it was understated and did not reflect contractor estimates indicating that the construction cost was likely to be higher.

Electric Boat did not disclose these estimates in its proposal. Procurement law and regulations do not require that cost and pricing data be submitted to the government in support of proposals on contracts when there has been adequate price competition. Moreover, the regulations do not prohibit contractors from cutting their prices for competitive reasons. The contract may be awarded as long as the proposal is technically acceptable, fair, and reasonable in terms of price and the contractor is determined to be responsible.

Our analysis of Electric Boat's fiscal year 1985 contract price for one ship showed that it was not excessively high and had been reasonably developed. A similar analysis of Newport News Shipbuilding and Dry Dock Company's contract price for three ships showed the price to be reasonably supported by construction cost data.

We believe the fiscal year 1986 contract will probably experience a cost overrun; i.e., the final cost will likely exceed the target cost of $898 million. The Navy is projecting an overrun based on the latest construction information on other submarines now underway at Electric Boat. Under the terms of the contract, the Navy and Electric Boat share equally all costs over the target up to a ceiling price of $1.171 billion. Beyond the ceiling price, the contractor absorbs all costs.

According to the Navy's estimates, all the SSN 688 submarine contracts that have been awarded to Electric Boat since its 1978 shipbuilding claims settlement with the Navy have overrun or are overrunning their target costs. Similarly, the Navy's estimates indicate that Newport News also is overrunning the target costs on its SSN 688 contracts. Moreover, problems with the AN/BSY-1(V) system, which will provide new and upgraded sonar and combat control capabilities to SSN 688 submarines, may adversely affect the cost and delivery of some of the submarines. Therefore, it is unlikely that the Navy will obtain the four submarines for the contract target price of $1.03 billion.

The cost and schedule performance of Electric Boat is monitored under a cost monitoring plan by the Navy's Supervisor of Shipbuilding, Conversion and Repair, Groton, Connecticut. Problems with the measurement of Electric Boat's contract performance, which were previously reported by us, have resurfaced. Although Electric Boat and the Navy have moved to resolve these problems, in view of the expected cost overrun on the fiscal year 1986 contract, the Navy must maintain close surveillance over the contractor's cost, schedule, and performance. The cost monitoring plan, if followed, should provide adequate review of the contractor's operations and contract performance.

More detailed information about our work is included in appendix I.

We requested comments on a draft of this report from the Department of Defense, Electric Boat, and Newport News. The Department of Defense concurred with our findings. (See app. II.) Electric Boat did not provide any comments; Newport News said it did not agree with a number of assertions and conclusions in the draft that were apparently based on facts and circumstances that it was not in a position to evaluate. It therefore did not recommend any changes or revisions. (See app. III.)

As arranged with your offices, unless you publicly announce its contents earlier, we plan no further distribution of this report until 14 days from its issue date. At that time, we will send copies to interested parties and make copies available to others upon request.

Frank C Conahan

Frank C. Conahan
Assistant Comptroller General

# Contents



**Abbreviations**

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| DODI | Department of Defense Instruction |
| FAR | Federal Acquisition Regulation |
| GAO | General Accounting Office |
| RFP | Request For Proposals |

# Fiscal Year 1986 Contract Award for Construction of SSN 688 Submarines

On March 21, 1986, the Navy announced that Electric Boat Division of General Dynamics Corporation had been awarded a fixed-price incentive contract in the amount of $1,032,667,000 in fiscal year 1986 for the construction of four SSN 688 Class nuclear attack submarines. While the procurement plan permitted a split award (i.e., one or more of the submarines could be awarded to different contractors on the basis of industrial base considerations), the Navy concluded that to award one of the four ships for that purpose would cost at least an additional $102 million. In fiscal year 1985, a contract for three ships was awarded to Newport News Shipbuilding and Dry Dock Company based on price, and a contract for one ship was awarded to Electric Boat for industrial base purposes at a premium of $33 million.

## Objectives, Scope, and Methodology

We reviewed the 1986 procurement process for the SSN 688 submarine to ascertain (1) if the proposed prices were realistic, (2) what the cost and national security consequences would be if these prices were not, (3) what assurances, if any, exist that the Navy will obtain its four 688 submarines within the contract's target price, and (4) how the actual costs of performing the contract will be monitored.

We reviewed the procurement planning for the SSN 688 Class nuclear attack submarine program; the solicitation of proposals; the submission and initial review of proposals; the source selection process, including the evaluation of proposals; the fiscal year 1986 award for these submarines; the price proposals for the fiscal year 1985 procurement; and the Business Clearance Memoranda and exhibits (record of procurement) for procurements made from fiscal years 1982 through 1985. We also reviewed (1) the return cost data (actual) on the progress of construction, (2) the Navy's estimates of the final contract costs, and (3) the Navy's system for monitoring contract performance at Electric Boat. We also determined whether problems discussed in our report, Allegations About Trident Submarine Program Matters (GAO/NSIAD-86-74BR, June 13, 1986), were still present.

In addition, to determine the realism of contract target prices, we focused on the estimated labor hours included in Electric Boat's and Newport News' proposals for fiscal years 1985 and 1986 and their relationships to current and completed submarine construction. In this regard, we compared actual manhours and estimates to complete reported to the Navy for the submarines under construction at those shipyards to the manhours included in the 1985 and 1986 proposed prices.

Our work was conducted at applicable contract and program offices of the Naval Sea Systems Command in Arlington, Virginia, and at the Supervisor of Shipbuilding, Conversion and Repair in Groton, Connecticut (Supship, Groton), from July to November 1986. Our review was conducted in accordance with generally accepted government auditing standards.

## SSN 688 Procurement History

Since January 1971, 12 fixed-price incentive contracts for the construction of 48 SSN 688 Class submarines have been awarded to two private shipyards, the Newport News Shipbuilding and Dry Dock Company and the Electric Boat Division of General Dynamics Corporation. At the time of the fiscal year 1986 procurement, Newport News had delivered 13 submarines to the Navy and had 8 ships under construction and Electric Boat had delivered 20 submarines and had 7 under construction.

## Fiscal Year 1986 Procurement

The fiscal year 1986 SSN 688 procurement was competitively negotiated. A competitively negotiated procurement is initiated by a Request for Proposals (RFP), which lists the government's requirements and the criteria that will be used to evaluate the various proposals. Offers are usually discussed with those offerors that fall in the "competitive range." This process is concluded by award of a contract to the offeror whose proposal is most advantageous to the government, considering price and other factors.

On March 28, 1985, the Navy sent RFPs to Newport News and Electric Boat, asking that they submit fixed-price incentive proposals for a total of 12 submarines. Alternative proposals were requested for both a multiyear contract (1986-88) and a fiscal year 1986 contract, with options for fiscal years 1987 and 1988.

The Navy received proposals from both offerors on June 24, 1985. A Navy review of the proposals resulted in a number of changes in the procurement strategy, which required discussions with both offerors in November 1985. Upon conclusion of these discussions, the Navy amended the solicitation to reflect these changes. The changes included deletion of all multiyear contracting pricing alternatives; deletion of one ship funded in fiscal year 1987 and another funded in fiscal year 1988; revision of the solicitation to provide that only fiscal year 1986 prices would be evaluated for award purposes; and the restructuring of fiscal year 1986 pricing alternatives in quantities of one, two, three, and four ships.

The Navy then solicited best and final offers on November 13, 1985, and established December 6, 1985, as the date for the final submission of contractors' proposals. The Navy later extended the date to February 18, 1986. Both shipyards submitted proposals that were evaluated against the criteria specified in the solicitation. The results of this evaluation were documented in a Navy report that recommended a specific contract award.

## Source Selection Process

The fiscal years 1986-88 SSN 688 Class Submarine Source Selection Plan specified the source selection criteria that were included in the RFP sent to each offeror. The proposals were evaluated for price (which was the most important or highest weighted category), delivery schedule, performance history, and shipyard physical security. The national defense and industrial mobilization factor also was considered.

Cost realism was not a factor in the evaluation of the proposed prices. The Federal Acquisition Regulation (FAR) states that the evaluation factors that apply to an acquisition and the relative importance placed on those factors are within the broad discretion of agency acquisition officials.

The Navy evaluated the offerors' proposed prices by performing a price analysis. This analysis is designed to determine whether each contractor's price is fair and reasonable and is made by examining and evaluating the proposed price without evaluating its separate cost elements and proposed profit. This technique is most effective when a procurement history or competition exists. In our opinion, the Navy's price analysis of the SSN 688 proposals was done in accordance with FAR requirements and criteria.

The fiscal year 1986 procurement was a competitively negotiated award that met the definition of adequate price competition provided in FAR 15.804-3(b). An award is based on adequate price competition if a proposed price results directly from price competition or if a price analysis alone clearly demonstrates that the proposed price is reasonable in comparison with current or recent prices for the same or substantially the same items purchased in comparable quantities, terms, and conditions under contracts that resulted from adequate price competition. When the award is based on adequate price competition, procurement law and regulations do not require the contractor to submit cost and pricing data in support of its proposal.

The Navy's price analysis for the fiscal year 1986 procurement included various comparisons of the competing proposed prices. Each contractor's proposed prices were compared with prior years' ship awards and were expressed in constant year dollars (excluding inflation). In each comparison, Electric Boat's proposed prices were lower than Newport News'. Newport News' proposed prices for fiscal year 1986 were higher than its prices for fiscal years 1984 and 1985 for ships that were of similar configurations. On the other hand, Electric Boat's prices decreased.

The Navy concluded that the fiscal year 1986 procurement was based on adequate price competition and that a price analysis of the two contractors' proposals supported an award to Electric Boat. The details of the analysis and an evaluation of the other factors were documented in a Proposal Analysis Report.

The report indicated that

- the industrial mobilization base should not be a determining factor in this particular contract award;
- Electric Boat was the low offeror if a contract award was made without considering industrial mobilization base;
- a split award (three ships to Electric Boat and one ship to Newport News) would increase the total cost by over $100 million, a differential of over 9 percent compared to an award of all four ships to Electric Boat; and
- the close competition realized in the fiscal years 1983-85 time frame still existed, but Electric Boat's prices were significantly lower than the 4 percent differential experienced in fiscal year 1985 when Newport News was the low offeror.

The report concluded that the proposed target costs of both contractors were reasonable, but Electric Boat's target price was more advantageous to the government in a four-ship award.

When ratings were assigned for all factors, Electric Boat was shown to be the most favorable offeror. Consequently, the report recommended that the four-ship procurement be awarded to Electric Boat.

## Was the Successful Offeror's Price Realistic?

We analyzed the successful offeror's proposal to determine if the target price was realistic, focusing on labor hours because it is the major contractor-controlled cost element. Our analysis indicated that the labor hour estimate for the four-ship award was understated. The labor hours were calculated using an estimate at completion for a specified base ship. They did not reflect the more current estimate for that ship, which would have produced a higher labor hour projection. Consequently, the target price was lower than if the more recent data had been used in preparing the proposal.

In our analysis of the best and final offer submitted in February 1986, we noted that Electric Boat, in describing the basis for the trades (welders, riggers, shipfitters, etc.) manhour estimate, stated:

> "This forecast was prepared for the proposal submitted in June 1985. This estimate still appears reasonable for forecasting future contract costs."

We found that the trades manhour estimate was made using the SSN 724 (a ship under construction at the time of the proposal) as the base ship. The estimate at completion for this ship was used to project future learning (projected improvements in efficiency) on subsequent ships under construction and the lead ship of the fiscal year 1986 procurement. Adjustments were made to the lead ship's estimate to arrive at the total manhour trades estimate.

Support labor estimates for the base ship, corrected for learning, were added to the trades estimate to arrive at the total manhours for the fiscal year 1986 lead ship. Other recurring and nonrecurring labor hour adjustments were then made to the lead ship's manhours to complete the estimates for the lead ship and the option ships.

We compared the manhour estimate for the base ship shown in the June 1985 proposal to the manhour estimate at completion for that ship, which had been reported to the Navy in Monthly Performance Reports. This comparison showed that, at the time of the development of the June price proposal, the reported manhour estimate at completion for the base ship was similar to the figure used in the June proposal. However, in July 1985, 1 month after the initial proposal had been submitted to the Navy, the reported manhour estimate at completion for the base ship increased and remained at the higher amount through the submission of the best and final offer in February 1986.

Electric Boat did not reflect the increased manhour estimate at completion on the base ship in its best and final offer. Since the SSN 724 estimate was used to project the labor hours for the fiscal year 1986 lead and other ships, the proposed price apparently did not reflect the probable construction costs.

Electric Boat, however, did not have to reflect or disclose the higher estimate because, as noted earlier, the Navy had determined that adequate price competition existed. Therefore, submission or certification of cost or pricing data was not required. An offeror can choose to cut its price to be competitive. As long as the proposal is technically acceptable, fair, and reasonable in terms of price and the contractor has been determined to be responsible to perform the work, a contract award may be made to that offeror. The contracting officer must, however, assure that change orders or follow-on procurements are not used to recover amounts of below-cost bids.

## Consequences of an Unrealistic Price

Unless new construction efficiencies offset recent historic experience, a price resulting from a below-cost or understated proposal will result in an overrun of the target cost. Because of the understated price on this contract, we believe a cost overrun is likely to occur. In September 1986, Supship, Groton (the Navy's field activity responsible for administering the contracts with Electric Boat), based on the latest available contractor performance, forecasted a cost overrun of $196.1 million and a 21-percent increase in labor hours.

The fiscal year 1986 contract is a fixed-price incentive type with a 50/50 sharing of underruns and overruns from a target cost of $898,032,200. The contractor's share of overruns is deducted from its profit of $134,634,800. Target cost and profit produced a target price of $1,032,667,000. The maximum amount, excluding change orders and escalation, the Navy will pay on this contract, regardless of the contractor's actual cost experience, is the ceiling price, which is 130.4 percent of target cost, or $1,171,034,000.

## Navy Will Probably Not Obtain Submarines Within Contract Price

The Navy will probably not obtain the four submarines within the target price of $1.03 billion because of the understated labor hours and the cost performance record of Electric Boat. Even though submarines are being delivered on or ahead of schedule at Electric Boat, the contractor has overrun or is overrunning, according to Navy projections, its target costs on all SSN 688 contracts awarded since its 1978 shipbuilding claims settlement with the Navy. Similarly, the Navy is projecting that Newport News is overrunning target costs on its SSN 688 contracts. The Navy's estimates indicate, however, that the contracts are still profitable at both shipyards.

As of September 1986, the Navy was projecting cost overruns totaling $443.6 million at Electric Boat on 5 contracts for 13 submarines. As of July and August 1986, the Navy was estimating that Newport News would overrun target costs by $266.9 million on two contracts for eight submarines. At both shipyards, the most recent contracts account for the major portion of these overruns.

Further, as noted in our report, SUBACS Problems May Adversely Affect Navy Attack Submarine Programs (GAO/NSIAD-86-12, Nov. 4, 1985), the Navy's restructuring of its three-phased Submarine Advanced Combat System program could affect the SSN 688 submarines. This system, which was renamed AN/BSY-1(V), was designed to provide those SSN 688 submarines authorized for fiscal year 1983 and beyond with new and upgraded sonar and combat control systems and advanced data processing capabilities. We reported that the program had not been implemented as initially approved and had been restructured. We concluded that if the latest restructuring plan was unsuccessful, the SSN 688 Class submarines authorized for fiscal years 1986 through 1992, as well as the nine currently under construction, could incur increased costs and potential delivery delays.

Our current review indicated that the potential for increased costs and delivery delays still exists and could affect the 1986 submarines. In its analysis of the fiscal year 1986 proposals, the Navy stated that Electric Boat's proposed delivery dates for the ships will be met only if the contractor completes construction of earlier boats (specifically, SSNs 724, 725, 751, and 752) on accelerated schedules. The SSN 724 was delivered in October 1986 on an accelerated delivery schedule. The Navy still expects the contractor to achieve accelerated deliveries on the SSNs 725, 751, and 752.

In recent months, however, Electric Boat has alerted the Navy on several occasions that the SSN 751 construction schedule is being affected by late and/or faulty AN/BSY-1(V) design data. (This is the first ship to incorporate the AN/BSY-1(V) design.) For example, on September 16, 1986, Electric Boat notified the Navy that some portions of the work on the SSN 751 were significantly behind schedule and that the delay was caused basically by major changes to the AN/BSY-1(V) design. Electric

Boat advised the Navy that to meet the delivery date, the design must be finalized immediately. On October 7, 1986, Electric Boat again cautioned the Navy that major design problems, primarily with the AN/BSY-1(V), were causing rework, delays, and stoppages to the construction of the SSN 751. It again stated that the AN/BSY-1(V) equipment must be delivered on schedule to support the construction schedule. Thus, the issues discussed in our November 1985 report apparently have not been resolved and they may affect SSN 688 Class submarines currently under construction.

In January 1987, Electric Boat informed the Navy that it plans to request an adjustment in the cost and schedule of the SSN 688 Class contracts. The adjustment will reflect the impact of problems relating to the AN/BSY-1(V) combat system.

## Was the Fiscal Year 1985 Contract Target Price Excessively High?

In fiscal year 1984, Electric Boat was awarded a contract for two SSN 688 Class submarines, while Newport News received a contract for one submarine. Each contract contained options for one to four ships in fiscal year 1985.

After the fiscal year 1984 awards had been made, the configuration baseline for the fiscal year 1985 ships changed. Consequently, in June 1984, the Navy requested both shipyards to submit alternate proposals, which responded to the configuration changes, by September 17, 1984.

A Navy comparison of the two shipyards' alternate proposals with the option prices showed that Newport News had entirely repriced the ships for 1985, while Electric Boat had added its estimates for the costs of the configuration changes to its option prices. According to the Navy, Newport News' alternate prices were less than its earlier option prices.

The specific changes in Electric Boat's fiscal year 1985 option prices were presented in a pricing summary that traced the development of its alternate price for one ship. To determine whether the alternate price was excessive, we reviewed the basis for the fiscal year 1984 proposal and found that the labor hour projections were based on actual cost data for the second SSN 688 contract, as modified for scope changes and anticipated productivity improvements. We verified that these labor hours were reasonably supported by the contractor's actual cost experience. We believe that the approach Electric Boat used to develop its fiscal year 1985 proposed prices was reasonable and that the contract price for the one ship was not excessively high. Current Navy projections show that the contractor is overrunning final contract costs for fiscal years 1984 and 1985.

We performed a similar analysis on Newport News' fiscal year 1985 proposal. Our analysis showed that the supporting labor hours for the baseline ship, which were used to develop the contract estimates, were consistent with the hours for that ship shown in quarterly cost reports submitted to the Navy at that time. A Supervisor of Shipbuilding, Conversion and Repair, Newport News, study on estimated final costs for the fiscal year 1985 contracts showed that Newport News was overrunning target costs on the three ships as of August 1986.

## Method Used to Monitor Contract Performance

Electric Boat's cost and schedule performance is monitored by Supship, Groton. Its responsibilities include reviewing the contractor's management and operations controls to determine whether the direct and indirect costs charged to government contracts are reasonable, allocable, and allowable. This surveillance is conducted under a cost monitoring plan that includes coordination with and assistance from the Defense Contract Audit Agency.

A provision in the fiscal year 1986 contract requires that the contractor establish, maintain, and use Cost Schedule and Control Systems that meet the criteria of Department of Defense Instruction (DODI) 7000.2, Performance Measurement for Selected Acquisitions. This instruction serves as the standard for measuring (1) the reliability of a contractor's management control system and (2) the data and reports that are derived from the system and that are submitted to and used by the Navy. Electric Boat uses a management control system called Submarine Computer Oriented Management to respond to this contract requirement.

Our recent report, Allegations About Trident Submarine Program Matters (GAO/NSIAD-86-74BR, June 13, 1986), discussed problems the Navy had in the early 1980s with Electric Boat's management control systems. During that period, budgeting and other practices that were not in compliance with DODI 7000.2 criteria may have resulted in the Navy making progress payments earlier than warranted, cost and schedule variances being suppressed, and cost reports that were inaccurate or misleading.

Among the unacceptable practices identified by the Navy were making retroactive changes to budgets and schedules and overvaluing work performed early in the construction cycle. In April 1982, after Electric Boat had made a large budget adjustment, these problems led the Navy to suspend contract payments to Electric Boat. In March 1983, after a year of negotiations on system deficiencies, Supship, Groton, and Electric Boat agreed on a new system. One of the conditions agreed upon was that Electric Boat would not make retroactive changes to data previously submitted.

Problems with the management control system resurfaced in 1985 and 1986. Navy surveillance and audits of the Submarine Computer Oriented Management System's data disclosed unacceptable practices such as retroactive changes to budgets.

According to a Supship, Groton, official, the retroactive changes, while not acceptable to the Navy, are not considered by the Navy to be of sufficient magnitude to constitute a major problem. A budget adjustment similar to the one in 1982 has not been made. Monthly monitoring of Electric Boat's budget changes by the Navy indicates that substantial improvement is being made by Electric Boat.

Since the Navy expects a cost overrun on the fiscal year 1986 contract, any resurfacing of DODI 7000.2 noncompliance problems at Electric Boat becomes significant. Because of the potential overrun, it is important that close surveillance of compliance with DODI 7000.2 be maintained over contractor cost, schedule, and performance. The Supship cost monitoring plan, if followed, should provide adequate review of the contractor's operations and contract performance.

# Comments From the Assistant Secretary of Defense, Department of Defense

ASSISTANT SECRETARY OF DEFENSE
WASHINGTON, D C 20301-8000

ACQUISITION AND LOGISTICS
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MAR 23 1987

Mr. Frank C. Conahan
Assistant Comptroller General
National Security and International
Affairs Division
U.S. General Accounting Office
Washington, DC 20548

Dear Mr. Conahan:

This is the Department of Defense (DoD) response to the General Accounting Office (GAO) Draft Report, "Fiscal Year 1986 Award for Construction of SSN 688 Submarines," dated February 2, 1987, (GAO Code 394155/OSD Case 7216).

The Department has reviewed the report, concurs with its findings and has no further comment. There were no recommendations.

Sincerely,

Thomas P Christie
for Robert B. Costello

# Comments From the Controller, Newport News Shipbuilding

**Newport News Shipbuilding**
A Tenneco Company

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February 11, 1987

Mr. Frank C. Conahan
Assistant Comptroller General
United States General
Accounting Office
National Security and
International Affairs Division
Washington, D. C. 20548

Dear Mr. Conahan:

Pursuant to your letter of February 2, 1987, appropriate members of Newport News Shipbuilding management have reviewed your draft report on the fiscal year 1986 contract award for construction of SSN688 submarines. We do not concur with a number of the assertions and conclusions in the draft report but many were apparently based on facts and circumstances we are unable to fully evaluate. Consequently, we have no specific changes or revisions to recommend.

We appreciate the opportunity to review and comment on the draft report and request a copy of your final report when issued.

Sincerely,

J. B. Burling

J. B. Burling
Controller

JBB:brp

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