



COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

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JUN 24 1974

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The Honorable Les Aspin
House of Representatives



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Dear Mr. Aspin:

We have inquired into certain aspects of the Navy's Submarine Emergency Communications Transmitter (SECT) program in response to your January 3, 1974, letter and subsequent discussions with your office.

Our examination was directed primarily to the circumstances surrounding the Navy's decision not to terminate the fiscal year 1973 production contract for the SECT buoys and related equipment. As discussed below, we found that the Navy might have saved about \$2.1 million had it terminated the contract by the end of November 1972.

In addition, we obtained information on the nine questions concerning the SECT program in your December 26, 1973, and January 28, 1974, letters to the Navy.

As discussed with your office, in view of the claims currently before the Armed Services Board of Contract Appeals, we did not look into the allegations of Mr. Lewis D. Malnak regarding his dealings with the Navy on a program for developing and producing the receivers used with the SECT buoys.

A summary of our findings follows.

PROGRAM HISTORY

The Navy's submarine fleet is composed of three broad types of vessels designated as the SS, the SSN, and the SSBN. SS and SSN vessels are attack-type submarines; SS vessels are diesel powered and SSN vessels are nuclear powered. The SSBNs are nuclear-powered ballistic missile vessels and are part of our country's strategic military force. Thus, from a strategic point of view, the loss of an SSBN submarine would have a greater impact on our national defense than would the loss of an SS or SSN.

As early as 1959, the Navy established a requirement that SSBNs be provided with a system for alerting appropriate command levels when one of the vessels and its strategic weapons system had been lost. In fiscal year 1960, the Navy began spending research and development funds for this requirement. Not until after the loss of the SSN Thresher in 1964, however, were specific recommendations made on the urgent need for a

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definition of the type of devices which should be installed to satisfy a submarine alerting and locating requirement. These recommendations were formulated in a 1964 report entitled "Deep Submergence Review Group Report."

From 1964 to 1968, the Navy spent major efforts in developing the SECT buoy. It was designed for installation on SSBNs only and was intended to alert the Navy to any gaps in the Nation's nuclear defense lines and to pinpoint the location of a lost vessel. The cylinder-shaped buoy weighs about 650 pounds and is approximately 8 feet long and 16 inches in diameter. When ejected from the hull of a submarine, it floats to the surface and emits a message to land-based receiver stations stating that the submarine has sunk.

In 1968, after the loss of the SSN Scorpion, the Navy decided to (1) expand its SECT program for SSBNs by installing the buoy on all existing SS and SSN submarines and (2) accelerate the program by installing SECT on SSBNs before a prototype ship installation and service approval. For several years thereafter, the SECT program continued uninterrupted at its expanded and accelerated pace. In 1968, and again in 1971, the Naval Ship Systems Command (NAVSHIPS) completed studies supporting the feasibility of installing SECT on all SS and SSN submarines; installing the buoy in the SSN 688 class was not studied.

The Navy purchased 198 buoys--2 under a prototype contract and 196 under 2 production contracts awarded to the Collins Radio Company in 1969 and 1970. The first production contract, as amended, was for \$8,698,391; it was awarded on September 10, 1969, for 90 SECT buoys to be delivered from June 1970 to August 1971 for use on SSBNs. The second production contract, as amended, was for \$11,862,227; it was awarded on November 4, 1970, for 106 SECT buoys to be delivered from July 1971 to June 1974 for use on SS and SSN submarines.

The first installation of SECT began on SSBNs in January 1970. As of May 1974 all 41 SSBNs were completely equipped with SECT. Installation of SECT in the SSNs started in October 1971. Three SSNs have been equipped with SECT, and one is undergoing ship alterations, including SECT installation. Installation of SECT on the fourth SSN will not be completed until about February 1975. SECT has not been installed in any SS submarines.

PROGRAM COSTS

The Navy obligated \$48.1 million for the SECT program through April 1974. A total of \$44.1 million had been spent for research and development, procurement, and installation of the SECT buoys and related equipment. Most of the \$4 million in obligated but unexpended funds represent moneys to be paid to the production contractor upon satisfactory delivery of buoys.

The following table shows total obligations and expenditures for the various phases of the SECT program. Enclosures I and II include a detailed breakout provided by the Navy of these obligations and expenditures by fiscal year.

Summary of SECT

Program Costs Through April 1974

<u>Phase of program</u>	<u>Obligations</u>	<u>Expenditures</u>
	(millions)	
Research and development	\$22.300	\$22.213
Procurement	21.713	18.244
Operation and maintenance	1.284	.820
Installation costs	1.406	1.406
Spare parts	1.014	.990
Refurbishing kits	<u>.428</u>	<u>.428</u>
 Total	 <u>\$48.145</u>	 <u>\$44.101</u>

PROJECT MANAGERS

The names, organizations, and tenures of the seven project managers assigned to this program since the spring of 1961 are listed below. They also had duties and responsibilities which extended beyond the SECT program.

<u>Name</u>	<u>Organization</u>	<u>Tenure</u>
Capt. W. C. Cobb	Project Office, Naval Electronics Systems Command (NAVELEX)	July 1972 to Present
Capt. F. L. Brand	Project Office, NAVELEX	Aug. 1970 to July 1972
Capt. H. C. Rodin	Project Office, NAVELEX	Feb. 1967 to Aug. 1970
Capt. C. H. Blair	Project Office, Strategic Systems	Nov. 1966 to Feb. 1967
Comdr. C. H. Stephan	Project Office, Strategic Systems	Dec. 1965 to Nov. 1966
Capt. J. Dudley	Project Office, Strategic Systems	Fall 1963 to Dec. 1965
Capt. D. Veasey	Project Office, Strategic Systems	Spring 1961 to Fall 1963

INADVERTENT RELEASES OF SECT BUOYS
AND CORRECTIVE MEASURES TAKEN

We identified only two incidents involving the inadvertent release of SECT buoys; both occurred in the spring of 1971 on SSBNs. One release involving two buoys occurred in the Mediterranean Sea and resulted from a human error while a crew member was resetting an automatic timer switch (the dead man's switch) which automatically releases the buoy if manual release is not possible. No equipment malfunctioned. The second release, involving one buoy, occurred in the Atlantic Ocean and resulted from a mechanical malfunction caused by corrosion because seawater entered the sensing element.

Both problems were corrected by December 1973. The human error problem was solved by providing an additional safety feature to the timer to prevent an inadvertent launch due to mishandling. The problem of corrosion of SECT parts was solved by installing better corrosive-resistant materials on SECT parts exposed to sea water. By May 1974 these modifications had been made on all but seven of the submarines on which the SECT has been installed. Six of the remaining seven vessels will receive the SECT modifications during overhauls which are underway. Operating procedures have been revised to avoid a recurrence of these problems on the other vessel until the equipment modifications can be made.

PROBLEMS INVOLVING THE SIZE OF
THE SECT BUOY AND THE DECISION TO
DEFER INSTALLATION ON THE SS AND SSN SUBMARINES

Although the SECT buoy was originally designed for installation on the larger SSBNs, NAVSHIPS feasibility studies concluded that it was technically possible to also install SECT on all types of submarines. However, space on the SS and SSN submarines had to be contrived, requiring significant modifications to accommodate the SECT equipment.

By early fall of 1972, four developments caused the Navy to reassess its emergency alerting and locating program: (1) many operational problems were found with SECT installed on SSBNs, (2) the installation costs of SECT on SSNs had increased, (3) the design of the new SSN 688 class submarine was such that SECT could not be installed, and (4) the retirement of SS diesel submarines was proceeding at a rate that would cause the installation of SECT on these vessels to be fiscally unsound.

In late 1972, after the first SSN installations were underway, NAVSHIPS became concerned about the high installation costs of the structural modifications that had to be made to the vessels due to the size of the buoy and related equipment. Installation costs varied from one class of ship to another. For instance, costs to install two buoys on each SSBN ranged from \$35,750 to

B-160877

\$110,000. Installation costs for one buoy on each of three completed SSNs have ranged from \$205,101 to \$240,644. The Chief of Naval Operations (CNO) projected that the fiscal year 1973 costs to install one buoy on SSNs would be approximately \$375,000.

The Navy was also experiencing problems with the operation of the SECT buoys on the SSBNs. On October 25, 1972, NAVSHIPS formally informed CNO of the installation costs and operational problems and recommended all future SS and SSN installations be deferred pending their resolution. On the basis of information provided by NAVELEX, NAVSHIPS told CNO that "funds for SECT buoy procurement for SS/SSN installations have already been obligated by NAVELEX, and these funds are not recoverable."

As a result of NAVSHIPS' recommendations, the Deputy Chief of Naval Operations (Submarine Warfare) on February 6, 1973, ordered that all installations of the SECT buoy be deferred except for those in progress. This order was still in effect in May 1974.

The principal reasons CNO cited for the deferral action were the excessive installation cost overruns resulting in the possible cancellation of other military alterations and serious doubt about the suitability of installing the SECT on SS and SSN units because of the size of the buoy and launching equipment.

In February 1973 CNO also initiated action to review and update the specific operational requirement for the submarine emergency alerting and locating capability and requested the Chief of Naval Material to examine the technical feasibility of satisfying this requirement with a more suitable substitute. Since then the Navy has spent about \$80,000 in developmental effort and plans to fund about \$800,000 in fiscal year 1975 for research and development of a small buoy for SSNs.

The Navy has no definite plans to install submarine alerting and locating devices on SS submarines because these vessels may be retired from the active fleet or may be nearing retirement when the smaller buoy becomes operational. The Navy feels that the small buoy will not be ready for installation before 1977 and probably will not have the same performance capabilities as SECT.

In February 1973, when the decision to defer further installation of the buoys was made, the Navy had 84 buoys on hand or on order whose future use was questionable. In June 1973, CNO ordered that 28 of them be released for use on the 10 new TRIDENT submarines, the first of which is scheduled for delivery around December 1977.

Therefore, even though 28 buoys are planned for use on undelivered submarines, the Navy still has 56 SECT buoys and related equipment valued at almost \$6 million which are excess to planned requirements. The Navy

was considering the use of some of these 56 buoys in a long-range test program for SECT.

CONTRACT TERMINATION VERSUS
CONTINUED PRODUCTION OF SECT

As discussed below, we believe the Navy did not adequately consider the advantages of terminating the SECT production contract in late 1972 when serious questions arose about the suitability of the buoys for installation in the submarines for which they were being purchased. As a result, the opportunity was missed to realize significant savings in procurement costs.

The second SECT production contract (No. N00039-71-C-0018, dated Nov. 4, 1970) was a multiyear procurement for 106 buoys and related equipment. This contract had a provision to terminate for the convenience of the Government, and, since it was a multiyear procurement, provision was also made for contract cancellation. The cancellation provision permitted the Navy to cancel the contract (1) by September 30, 1971, for the fiscal year 1972 and 1973 procurements of 70 buoys and related equipment for a maximum cost of \$324,000 or (2) by July 31, 1972, for just the fiscal year 1973 procurement of 39 buoys and related equipment for a maximum cost of \$216,000. The actual cost to the Government for either termination or cancellation would have been subject to negotiation between the Government and the contractor.

We found no evidence that, between October 1972 and February 1973, when the SECT deferral decision was being reviewed, the Navy considered terminating the SECT buoy contract. If CNO had decided to eliminate the ship alteration plans for installing the buoy, NAVELEX would have been responsible for evaluating the benefits and costs to the Government of terminating the SECT contract. Because plans to install buoys were not eliminated, however, NAVELEX did not evaluate termination because it felt the decision to defer installation might be lifted at some future date and that installations would again commence. Thus, production of the buoys was allowed to continue.

As stated earlier, before deciding to defer installation, CNO had been informed that funds for SECT buoy procurement had already been obligated and these funds "were not recoverable." We were advised that CNO interpreted this statement to mean no SECT procurement funds could be saved. A SECT program official, however, said this statement was intended to mean that the total funds invested in the entire SECT program were not recoverable to any significant degree. He said this statement was not based on an analysis of potential termination costs but was simply the opinion of the project office. Neither the contractor nor the Defense Contract Administration Services (DCAS) was asked to estimate the cost to the Government and resulting savings, if the production contract were terminated. Therefore, neither CNO nor NAVELEX inquired into possible savings through contract termination.

Since CNO's impression was that no procurement funds could be recovered, the primary concern was to save future installation costs, ultimately, through deferral. A CNO official informed us, however, that, if the NAVELEX statement on the nonrecoverability of funds had not been made, an inquiry might have been initiated which would have disclosed the possibility of program savings.

As previously stated, CNO was formally notified, on October 25, 1972, of the operational problems with the buoys as well as their high installation costs and was asked to defer their installation on certain classes of submarines. In our opinion, an estimate of the potential savings by terminating the SECT production contract should have been developed soon thereafter. This would have provided important information for CNO to use in reaching his decision.

We asked DCAS, on April 1, 1974, to assist us by estimating the amount it would have cost the Government if the fiscal year 1973 buy of 39 buoys and related equipment were terminated by the end of November 1972.

DCAS advised us on April 30, 1974, that, for a number of reasons, it is not possible to determine with any degree of accuracy, what termination costs would have been in November 1972. (See enc. III.) It estimated, however, that the minimum termination costs to the Government for the fiscal year 1973 buy would have been \$1,721,075 and that this figure could have been increased by 20 percent (\$344,215), or more, during settlement proceedings. Thus, termination costs were estimated to total at least \$2.1 million.

Since the contract value of the fiscal year 1973 buy for 39 buoys and related equipment was almost \$4.2 million, the Navy might have saved about \$2.1 million had it terminated the contract by the end of November 1972.

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We have discussed the matters in this report with Navy officials and considered their views in preparing the report. As your office requested, however, formal comments were not obtained.

As arranged with your office, copies of this report are being sent to Senator Richard S. Schweiker, Senator Harrison A. Williams, Jr.,

B-160877

and Congressman Edwin B. Forsythe. Further release will be made only if you agree or publicly announce its contents.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "James B. Stacks".

Comptroller General
of the United States

Enclosures - 3

OBLIGATIONS FOR SECT
BUOY AND LAUNCHER (AN/BST-1) AND
RECEIVER TERMINAL (AN/FRR-87)

FISCAL YEARS 1960-74

<u>Fiscal year</u>	<u>Research and develop- ment</u>	<u>Procure- ment</u>	<u>Operation and mainte- nance</u>	<u>Instal- lation costs</u>	<u>Spare parts</u>	<u>Refurbish- ing kits</u>	<u>Total</u>
(000 omitted)							
1960	\$ 245	-	-	-	-	-	\$ 245
1961	660	-	-	-	-	-	660
1962	893	-	-	-	-	-	893
1963	1,220	-	-	-	-	-	1,220
1964	1,052	-	-	-	-	-	1,052
1965	2,316	-	-	-	-	-	2,316
1966	4,334	-	-	-	-	-	4,334
1967	708	-	-	-	-	-	708
1968	1,364	-	-	-	-	-	1,364
1969	5,488	\$ 4,613	-	-	-	-	10,101
1970	2,452	3,463	\$ 142	-	\$ 12	-	6,069
1971	1,241	5,466	144	\$ 492	18	-	7,361
1972	170	2,952	107	914	768	\$ 87	4,998
1973	130	5,219	412	-	216	341	6,318
1974	27	-	479	-	-	-	506
	<u>\$22,300</u>	<u>\$21,713</u>	<u>\$1,284</u>	<u>\$1,406</u>	<u>\$1,014</u>	<u>\$428</u>	<u>\$48,145</u>

EXPENDITURES FOR SECT
BUOY AND LAUNCHER (AN/BST-1) AND RECEIVER
TERMINAL (AN/FRR-87) FISCAL YEARS 1960-74

<u>Fiscal year</u>	<u>Research and development</u>	<u>Procurement</u>	<u>Operation and maintenance</u>	<u>Installation costs (note a)</u>	<u>Spare parts</u>	<u>Refurbishing kits</u>	<u>Total</u>
(000 omitted)							
1960	\$ 245	-	-	-	-	-	\$ 245
1961	660	-	-	-	-	-	660
1962	893	-	-	-	-	-	893
1963	1,220	-	-	-	-	-	1,220
1964	1,052	-	-	-	-	-	1,052
1965	2,316	-	-	-	-	-	2,316
1966	4,334	-	-	-	-	-	4,334
1967	691	-	-	-	-	-	691
1968	1,364	-	-	-	-	-	1,364
1969	5,488	\$ 4,613	-	-	-	-	10,101
1970	2,425	3,260	\$142	-	\$ 12	-	5,839
1971	1,238	5,439	143	\$ 492	1	-	7,313
1972	170	2,485	89	914	768	\$ 86	4,512
1973	98	2,447	344	-	209	342	3,440
1974	19	-	102	-	-	-	121
	<u>\$22,213</u>	<u>\$18,244</u>	<u>\$820</u>	<u>\$1,406</u>	<u>\$990</u>	<u>\$428</u>	<u>\$44,101</u>

a/Thirty SSBNs had buoys installed by Navy personnel while afloat and one SSN is having a buoy installed; therefore, cost data is not readily available for these submarines.



DEFENSE SUPPLY AGENCY
 HEADQUARTERS
 CAMERON STATION
 ALEXANDRIA, VIRGINIA 22314

IN REPLY
 REFER TO DCAS-AC

30 APR 1974

Mr. H. L. Krieger
 Regional Manager
 U.S. General Accounting Office
 Washington Regional Office
 803 West Broad Street
 Falls Church, Virginia 22046

Dear Mr. Krieger:

This is in reply to your letter of 1 April 1974 in which you requested the approximate amount it would have cost the Government if the fiscal year 1973 buy for 39 buoys and related equipment on Navy contract number N00039-71-C-0018 were terminated at the end of November 1972.

As you are aware, it is not possible to determine with any degree of accuracy what might have happened if a certain action had taken place approximately one and one-half years earlier. This is particularly true in the case of estimating termination costs since there is no feasible way to reconstruct the status of all the actions involved in a multi-million dollar contract. For example, estimating progress and probable termination costs on subcontracts at all tiers would require a substantial expenditure of manhours by both Government and contractor personnel.

However, since you have stated that you would be satisfied with an estimated figure within a rather broad range, the Defense Contract Administration Services Office (DCASO), Cedar Rapids, Iowa, was asked to prepare such an estimate. The method selected to develop this estimate is detailed in the enclosure hereto.

The minimum termination cost to the Government estimated by DCASO, Cedar Rapids, Iowa, is \$1,721,075. It is conceivable that during termination settlement proceedings, which are based on actual costs incurred, this figure could be increased by 20% or more.

One other precautionary note. We have no way here in DCAS of knowing of other programs or contracts of the Navy which might have been adversely

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DCAS-AC
Mr. H. L. Krieger

affected if the remaining quantity of buoys on this contract had been terminated in November 1972, nor does DCAS have knowledge of the numerous other factors that the Navy may have considered at the time the decision was made.

I trust this information will assist you in your response to the Congressman.

Sincerely,

A handwritten signature in cursive script, appearing to read "Joseph J. Cody, Jr.", written in dark ink.

1 Encl

JOSEPH J. CODY, JR.
Major General, USAF
Deputy Director
Contract Administration Services

Method Selected to Develop the Termination Estimate

1. The normal procedure followed in a termination settlement is for the contractor to submit a proposal to recover costs that have been incurred; therefore, the first step was to prepare an estimate using the same format the contractor used in submitting his original total cost proposal which covered the entire three (3) fiscal years (1971, 1972, and 1973).
2. The contractor's original total cost proposal amounted to \$13,108,656 which, through negotiation, was reduced to \$11,773,078. This equates to 89.81% of the contractor's original proposal; therefore, each cost element of the original proposal was multiplied by 89.81%.
3. The fiscal year 1973 portion of the contract (\$4,410,058) represents 37.46% of the total negotiated price of \$11,773,078; therefore, using the same rationale as above, each cost element was then multiplied by 37.46%.
4. Each cost element was then examined in view of the factual data on hand and/or the judgmental consensus of the technical representatives assigned to the contract to estimate what percentage of cost was incurred through the end of November 1972. For those cost elements which the contractor proposed to incur diminishing expenses for successive years, a straight line pricing adjustment was made to reimburse the contractor for the negative effect that occurred through the use of a constant unit price for the three (3) fiscal years.
5. The total of these adjusted cost elements would be the basic estimated terminated cost to which must be added an amount for termination settlement costs to which the contractor would normally be entitled. A rate of 7½% was estimated for this contract.

NOTE: This estimate is the result of an in-house review and no data, other than the original cost proposal, was requested from, or provided by, the contractor.