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RELEASED

March 1, 1983

The Honorable Ted Stevens
Chairman, Subcommittee on Defense
Committee on Appropriations
United States Senate



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Dear Mr. Chairman:

Subject: [Follow up of the Navy's Estimated Cost
Avoidance/Earlier Delivery for Nimitz
Class Aircraft Carriers] (GAO/PLRD-83-54)

In response to your January 6, 1983 request and subsequent discussion with your staff, we have followed up on our earlier report (MASAD-82-27, Mar. 26, 1982) on the Nimitz class (CVN) aircraft carriers. Our primary objective was to determine whether events that occurred since March 1982 influenced the projected earlier delivery and cost avoidance estimated by the Navy for the CVN-71, 72, and 73 aircraft carriers. We found:

- Key events identified last year as being critical to the achievement of the CVN-72 and 73 earlier delivery and cost avoidance occurred as planned.
- Events and assumptions affecting anticipated savings and the planned earlier delivery of the CVN-71 have not changed since last year.
- The Navy is requesting \$82.8 million more in its fiscal year 1984 budget for CVN-72 and 73 escalation.
- Verifying the total projected savings for the CVN-72 & 73 may be difficult because of the occurrence of events throughout the course of the contract.

Our Office of the General Counsel reviewed the Navy's compliance with the provision of the 1983 Defense Appropriations Act, which stipulates that a firm, fixed price type contract be awarded for the carriers. Our legal opinion has been forwarded to you under separate cover.

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We performed our work at the Naval Sea Systems Command, Washington, D.C.; the Supervisor of Shipyards, Newport News, Virginia; and the contractor's facility, Newport News Shipbuilding and Dry Dock Company, Newport News, Virginia. At these activities, we obtained and examined pertinent documentation and interviewed officials responsible for the CVN program and contract awards. These individuals were, for the most part, the same people contacted during our previous review. We verified that critical milestones had occurred and re-examined the Navy's assumptions.

BACKGROUND

Last year, the Navy requested and received congressional approval to fully fund two nuclear aircraft carriers, the CVN-72 and 73, in fiscal year 1983. According to the Navy, fully funding both aircraft carriers in fiscal year 1983 would result in:

- Earlier delivery of the two carriers than would be possible under a traditional, single ship acquisition.
- A cost avoidance of approximately \$754 million when compared to the single ship proposal.
- An earlier delivery date and cost avoidance of approximately \$74 million on the CVN-71, which is already under construction at Newport News Shipbuilding and Dry Dock Company.

On February 5 and 9, 1982, the Chairmen of the Senate Committee on Armed Services and the Subcommittee on Defense, House Committee on Appropriations requested us to review the Navy's proposal to fully fund the CVN-72 and 73. In our March 26, 1982, report we concluded:

- The improved delivery schedule for the carriers was reasonable under the assumptions used by the Navy and could be achieved if certain key events occurred as planned.
- The Navy's projected cost avoidance of \$754 million was reasonable. We noted, however, that when interest costs associated with funding differences were considered, and expressed in terms of present value, the claimed cost avoidance was significantly reduced.
- Potential savings could accrue to the CVN-71, already under construction, if the commitment was made to fully fund the CVN-72 and 73 in fiscal year 1983. We explained the amount of these savings depended on how far along in construction the CVN-71 was when the CVN-72 and 73 were phased in.

The Navy received \$6.5595 billion of the \$6.7953 billion it requested for the two carriers in its fiscal year 1983 budget. The Navy had previously received \$475 million in fiscal year 1982 for CVN-72 nuclear long lead material. The estimated cost of the CVN program was reduced by a total of \$249.9 million. These reductions occurred in the following areas.

	<u>millions</u>
Government furnished equipment	\$ 13.1
Program manager funding	162.7
Future characteristics changes	74.1
	<u>\$249.9</u>

EARLIER DELIVERIES FOR THE CVN-72 and CVN-73

We stated in our March 1982 report that the projected earlier deliveries for the two nuclear aircraft carriers were predicated on the Navy awarding:

--Sufficient fiscal year 1982 Research, Development, Test and Evaluation funds to the contractor during the spring of 1982 for planning purposes.

--A long lead contract in October 1982.

--The basic ship construction contract by January 1983.

Each of these events has occurred as shown below.

Funding for planning purposes

The Navy provided \$550,000 to the contractor in April 1982 for planning purposes. The funds made available were from fiscal year 1982 Research, Development, Test and Evaluation appropriations. The funds were provided so the contractor could begin to prepare specification documents for future purchase orders, solicit vendors in preparation for placing orders, develop a phase in plan, and conduct other planning efforts for the CVN-72 and 73 as required.

Long lead contract

In late October 1982, the Navy awarded a cost-plus-fixed-fee (CPFF) type contract (N00024-83-C-2033) to the contractor for long lead material. The contract was for material to be used on the CVN-72. The Navy had planned to execute a contract for both ships, but was not authorized by the Congress to do so. Instead, the Navy included an option provision for long lead materials to be used on the CVN-73. According to the Navy, this had no effect on the overall acquisition plan or the achievability of the projected earlier deliveries/cost avoidance.

Basic ship construction contract

The Fiscal Year 1983 Defense Appropriations Act was enacted in December 1982 (Public Law 97-377) and fully funded the CVN-72 and 73. The Navy then issued a modification to the long lead material contract (#P00001) on December 27, 1982, providing for the basic construction of the two aircraft carriers. This modification, in the target amount of \$3.143 billion, superseded the CPFF long lead material contract and merged all long lead work into a fixed-price-incentive (FPI) type contract. The Navy, therefore, bettered their contract award milestone of January 1983.

All of the Navy's acquisition plan milestones are shown below with their corresponding planned and actual dates.

<u>Action</u>	<u>Planned Date</u>	<u>Actual Date</u>
1. Receipt of FY 1982 CVN-72 nuclear long lead funds (\$475 million)	December 1981	December 1981
2. Award of CVN-72 nuclear long lead contracts	January 1982	January 1982
3. Request long lead material and fully priced construction proposals from Newport News Shipbuilding and Dry Dock Company for CVN-72 and 73	February 1982	February 1982
4. Receipt of long lead proposals from Newport News Shipbuilding and Dry Dock Company	May 1982	May 1982
5. Congressional authorization of CVN-72 and 73	June 1982	September 1982
6. Receipt of fully priced construction proposals for CVN-72 and 73	July 1982	October 1982
7. Award long lead material contract (Both ships)	October 1982	1/October 1982
8. Congressional appropriation (Full funding for both ships)	December 1982	December 1982
9. Award construction contract (Fully priced for two ships)	January 1983	December 1982

1/ The Navy awarded a contract for the CVN-72 and included an option provision for the CVN-73.

According to the Navy, the slippages of individual events did not affect the overall acquisition plan because the basic construction contract was awarded in December 1982, a month ahead of schedule. Navy officials also stated these slippages did not affect the projected earlier deliveries or cost avoidance. The only effect of the slippages was to compress the available time for negotiations prior to contract award, and the Navy did not observe any negative effects resulting from this compression.

Government-furnished equipment (GFE)

We noted, in our earlier report, that the Navy may have problems obtaining some of the GFE to meet the projected construction schedule. Both the Navy and the contractor believed that this would not cause disruptions to the planned earlier delivery of the CVN-72 and 73. Navy officials stated they have not experienced any major GFE problems to date. These officials explained that they have requested higher priorities in acquiring GFE to insure the projected earlier deliveries. Contractor officials also stated they were not presently aware of any GFE difficulties.

PROJECTED \$754 MILLION COST AVOIDANCE

The \$754 million cost avoidance estimate is still a realistic and achievable projection according to the Navy. Navy officials stated that nothing has occurred to adversely affect the claimed savings even though program reductions of \$249.9 million have already been made. We could not document or verify any of the estimated cost avoidance because the contract was awarded less than 2 months ago and, therefore, costs incurred are insignificant. Contract information and costs incurred for the CVN-72 and 73 are as follows.

	<u>Negotiated/definitized contract information</u>	<u>Actual costs incurred</u>
Target cost	\$2,540,000,000	<u>1/\$1,265,663</u>
Target profit	\$ 603,000,000	
Target price	\$3,143,000,000	
Ceiling price	\$3,454,400,000	
Share ratio	75/25 above and below target cost	

1/Actual costs incurred as of January 30, 1983. Commitments and obligations currently exceed \$500 million.

Present value analysis

We stated in our earlier report that when interest costs associated with funding differences were considered and expressed in terms of present value, the claimed cost avoidance was reduced or negated. The Navy did not agree with our use of present value analysis during last year's review. It was viewed as being overly sensitive to interest rate selection, and as only one of numerous economic analyses available to decisionmakers. The Navy noted and we agreed that present value analysis does not account, in dollar terms, for the value of the earlier deliveries made possible by fully funding two carriers in fiscal year 1983.

We continue to support the use of present value analysis to properly reflect the time value of money and that portion of the claimed cost avoidance which does not represent any constant dollar savings. The Navy's position is also essentially unchanged.

PROJECTED EARLIER DELIVERY/COST AVOIDANCE ON THE CVN-71

We stated, in last year's report, that the multiship procurement of the CVN-72 and 73 would facilitate the earlier delivery of the CVN-71. We also supported the Navy's contention that potential savings could accrue to the CVN-71 if the commitment was made to fully fund the two new carriers in fiscal year 1983. The Navy now estimates these potential savings at \$74 million. We noted, however, that the extent of the savings depended on the CVN-71's percentage of completion when the CVN-72 and 73 were phased in. The \$74 million of estimated savings was not subjected to present value analysis because it was not known at the time of our earlier review.

The CVN-71 was about 10 to 15 percent complete during our previous review. It was about 37 percent complete when the contract for long lead material was awarded in October 1982, and is currently 44 percent complete. Because the phase in of the CVN-72 and 73 occurred when the CVN-71 was about 37 percent complete, we believe this provides sufficient time for the \$74 million savings to be realized. Further, the contractor will be able to meet the estimated earlier delivery date of December 1986, if it continues to progress at the current rate. We did not subject the estimated savings related to the CVN-71 to a present value analysis because all of the data required for the computation was not available.

RELATED ISSUES

We identified two issues we believe will be of interest to the Appropriations Committees. They are the Navy's fiscal year 1984 budget request for escalation on the CVN-72 and 73 and the problem of verifying the projected cost avoidance.

\$82.8 Million Request for
CVN-72 and 73 Escalation

The Navy is requesting approximately \$375 million in its fiscal year 1984 budget request for shipbuilding escalation. Included in this amount is \$82.8 million for CVN-72 and 73 escalation. The request is based on the Department of Defense's current escalation indices. These indices are higher than those that were used by the Navy in its original request for fully funding the CVN-72 and 73.

In our opinion, the Navy's request for CVN-72 and 73 escalation reflects the extreme difficulty which exists in predicting future costs over a long period of time (almost a decade in this instance). In our opinion, this request and future requests will affect upward or downward the projected cost avoidance. This is an issue that the Appropriations Committees may wish to pursue with the Navy during hearings on the shipbuilding budget.

Verifying the projected savings

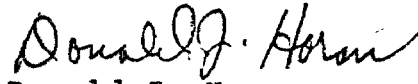
The Navy's estimated savings on the CVN-72 and 73 are comprised of specific areas, including escalation avoidance, economic order quantities, reductions in nonrecurring costs, and improved productivity. Escalation avoidance will be measurable, but not until the actual outyear escalation has been experienced. For the CVN-73, this will not be until 1993. Verifying the other savings, which we refer to as constant dollar savings, will be complicated by the occurrence of other events throughout the course of the contract, including future amendments or modifications, varying subcontractor and vendor actions, and an uncertain overall economy.

The Navy stated any effort to attempt to continually reestimate the achievement of cost avoidance other than by simply monitoring the actual execution of the multiship budget would be expensive and inefficient. The contractor also agreed that problems would be associated with savings verification. Company officials believe that unforeseen changes and events may complicate the verification during ship construction. They noted that since the anticipated cost avoidance has been incorporated in the contract's target price of \$3.143 billion, achievement of the target price would confirm the savings.

As discussed with your office, there was insufficient time to obtain official Defense comments on this report. We did, however, discuss the contents of the report with Navy officials and have considered their comments. As agreed, we are providing a copy of this report to the Chairman, Subcommittee on Defense,

House Committee on Appropriations. We plan no further distribution of this report until 10 days from the date of the report unless the contents are publicly announced earlier. At that time, we will send copies to interested parties and make copies available to others upon request.

Sincerely yours,



Donald J. Horan
Director