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Statement of
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Comptroller General
of the United States
before the

Senate Armed Services Committee *SEN 00500*
on

DE The Navy's Service Life Extension Program (SLEP) *]*



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Testimony

Mr. Chairman and members of the Committee, we are pleased to be here today to discuss our analysis of the Navy's cost study on the proposed service life extension work, and the relative advantages in awarding it either to the Philadelphia Naval Shipyard or Newport News Shipbuilding and Dry Dock Company, a private yard. Let me say at the outset that we believe our prior report was and remains valid. As stated in our report, there was a decided cost advantage in favor of Newport News.

I would like to briefly explain the background and our involvement in this issue. Then I plan to address the most recent Navy study and comment on some of the concerns raised by the Deputy Secretary of Defense. I would also like to call your attention to appendixes II and III, showing our position in more detail as it impacts the original and revised Navy study and our evaluations and comments on the study made by William N. Lanen, a graduate student at the Wharton School, for the City of Philadelphia.

BACKGROUND

The Navy is embarking on a service life extension program for four of its older carriers with potential follow-on ships beyond the four. The initial question was where should this work be done--in the Philadelphia Naval Shipyard or in a private shipyard. The Navy considered splitting the work, but felt the advantages in learning curve and work force

management clearly pointed to doing all four carriers in one yard over a specified period of time.

In the initial cost study, which the Navy completed in June 1978, a number of assumptions and concerns were expressed. The more important included:

1. Rapid buildup at Philadelphia could be a problem.
2. Philadelphia, in order to accomplish the work within the compressed timeframe would have to use 1474 members of the ship's crew.
3. The Newport News shipyard could perform the first carrier; but not the three follow-on carriers, because of congestion in the yard. (The Navy now concludes that Newport News can handle the entire work.)
4. Newport News could not, or would not use the ship's crew.

GAO was asked to review the cost study and issued its report on September 22, 1978. Prior to this date we met with interested members and staff members of the two affected yards.

→ In summary GAO felt that the cost study should be adjusted in several areas, the net effect was to provide Newport News with a greater cost advantage than the Navy had shown.

Navy officials generally concurred with our adjustments and conclusions. We recommended that in view of the sizeable cost differences, the Navy reevaluate its position to award the carrier to Philadelphia.

We also believed that a new study was needed which should evaluate (1) whether it is possible to obtain the needed skilled shipbuilding workers at Philadelphia for the program, (2) whether there is a variance between the productivity at public and private shipyards, (3) whether or not the ship's crew should be used at Newport News, and (4) the impact of the program on the planned modernization program at the Philadelphia Naval Shipyard.

The requirement for such a study was mandated by Section 811 of the FY 1979 Appropriation Authorization Act (PL. 95-485). Paragraph (a) (1) reads as follows:

"the Secretary of the Navy conducts a comprehensive least cost approach study (A) comparing the cost of carrying out such programs at public shipyards with the costs of carrying out such programs at private shipyards, and (B) evaluating such other factors as the Secretary of the Navy considers should be taken into account..."

CURRENT NAVY STUDY

After reviewing the Navy's revised cost estimates and other relevant factors, the Chief of Naval Operations and the Secretary of the Navy stated that

--costs should not be controlling.

--the availability of facilities at Newport News has been assured.

--Newport News has indicated a willingness to accept the Navy crew to do the work should it be required.

--relief from civilian end-strength limitations would be necessary before the Saratoga could be sent to Philadelphia.

More specifically, the Chief of Naval Operations said that the large cost differences in favor of Newport News, taken in aggregate with other relevant factors such as personnel morale, the ability of Newport News to take all four SLEP ships without interference with other Navy work, and the severe limitations on the Navy's civilian end-strength lends strong support to reversing the earlier decision and assigning the Saratoga to Newport News.

On January 25, 1979, the Deputy Secretary of Defense submitted to the Senate and House Armed Services Committees

the revised Navy study and his conclusion that the carrier work should be done at the Philadelphia Naval Shipyard.

The Secretary states that costs should not be the determining factor, since at best they are soft and not conclusive. He states the following factors were also considered:

- congestion at the Newport News yard,
- availability of facilities at Newport News,
- serious pending labor controversies at Newport News, and
- advantage of maintaining an additional East Coast yard with carrier SLEP and overhaul capability.

He concludes, and I quote:

"In summary we continue to feel that Philadelphia Naval Shipyard is the logical place to perform the SARATOGA SLEP and that the cost study and other non-cost factors considered have not provided a sufficient basis on which to change the decision the Secretary of the Navy made last April."

GAO has not had an opportunity to review in detail the revised study, however, we do not have serious problems with the Navy's cost estimates. As pointed out earlier we had reached substantial agreement on the prior data. The paramount question here is what assumptions should be used,

and what data should be compared. Much confusion has been created by comparing unlike items. This is understandable when one considers the number of cost alternatives presented. In essence we have six different assumptions for Philadelphia and two different assumptions for Newport News. These include three sets of assumptions and figures for Philadelphia with or without wage reform, and two assumptions for Newport News, one reflecting full use of the ship's crew labor, the second non-use of ship's crew labor. We have shown these various cost alternatives in Appendix I.

As can be seen from the data which was prepared by the Navy one could argue that Newport News has a cost advantage if the ship's crew were used of either \$80 million or \$37 million depending on what assumptions are used for Government retirement benefits and wage reform.

The Secretary of the Navy in his letter used the \$37 million figure as being the net difference which assumed a 7.1 percent retirement factor and wage reform.

We believe the following assumptions and resultant cost factors should be used in the comparisons of the two yards.

1. Use of ship's crew--The Newport News option without ship's crew is endorsed by the Chief of Naval Operations

for morale purposes. We have previously stated our preference for this option. This unfortunately was not one of the Navy options at Philadelphia, since the crew is needed as a labor force at Philadelphia to meet the program schedule. If the Newport News option without crew were selected, then for comparison purposes, one would have to make the same assumption for Philadelphia. This comparison has not been made for Philadelphia, but if it were, the use of civilian rates would increase Philadelphia's costs thus further widening the gap in favor of Newport News. While this would be the preferred option we have not used it, since according to the Navy it has no choice but to use the ship's crew to meet the schedule.

2. Civil Service retirement factor--Our prior report pointed out that the 7.1 percent cost factor used in past analyses is grossly understated and we believe the current Office of Management and Budget rate of 20.4 should be used. In a prior report to the Congress, we recommended an even higher figure of 24.7. The cost difference between the 7.1 percent and 20.4 percent amounts to about \$27 million.

3. Wage board reform--In prior reports we have endorsed the concept and need for wage board reform. Also Office of Management and Budget guidance requires that for estimating purposes for Fiscal Year 1979 and subsequent years passage of wage board reform legislation shall be assumed. While we showed both figures in our prior report, it may be more realistic to use the cost figures without wage board reform, because passage of legislation does not appear to be imminent. The cost differences between the two assumptions amounts to about \$19 million.
4. Corporate taxes--Office of Management and Budget Circular A-76 requires that for cost comparisons, between Government and private facilities, corporate taxes lost be included as a factor. The amount included as corporate taxes lost in the latest Navy study is \$18.1 million.

Given the above stated assumptions we believe the current Navy figure of \$80 million in favor of Newport News is the more realistic. I want to point out that the Navy, in its revised study, adjusted the Philadelphia estimates downward by \$36 million, primarily in the labor category. We have not evaluated the supporting data for this adjustment, but this single item is the major difference between the cost figures we used in our report and the current Navy figures.

As noted earlier in my statement the Navy in its first study had certain concerns. In the revised study these concerns were no longer considered valid. The Deputy Secretary of Defense has, however, raised other issues which are addressed below.

SHIPYARD CONGESTION AND
AVAILABILITY OF FACILITIES

When the Secretary of the Navy made his initial decision to perform the service life extension for the Saratoga at the Philadelphia Naval Shipyard, the Navy assumed that construction of a new aircraft carrier at Newport News would preclude that yard from accomplishing the follow-on service life extension programs because of an interference problem caused by the size of available drydocks.

The Navy made this assumption because its analysis of the facilities at Newport News was limited primarily to the facilities in the south yard which are currently used for Navy work.

Newport News told the Navy on June 22, 1978, that it had the facilities required to accomplish the four service life extension programs without conflicting with other Navy programs. Newport News said that it was willing to commit

the necessary facilities in the south and north yards for the work on the four ships provided that it received a similar commitment from the Navy.

On July 14, 1978, Newport News completed a study identifying various facility modifications required for it to handle the service life extension programs and told us that the modifications would cost about \$2.5 million in 1978 dollars. Newport News said that 3 to 6 months would be adequate for the facility modifications.

A subsequent Navy survey found that the Newport News facilities are adequate.

LABOR CONTROVERSIES

For over a week the shipyard workers at Newport News have been on strike. A major concern about the strike is its effect on the shipyard's labor rate and its impact on Navy's and our cost analysis. I have no way of telling how the strike will affect the shipyard's labor rate. But, the average labor rate that we projected at Newport News for February 1980 is 24 percent higher than the actual average labor rate for February 1978. The wage escalation projection is well above the President's wage price guidelines.

MOBILIZATION NEEDS

The Secretary of the Navy said that among the factors he considered last year that influenced his decision to assign the Saratoga to Philadelphia was the desirability of maintaining an effective carrier overhaul capability at a second East Coast Naval Shipyard. Recently the Secretary said that his desire remains unchanged, but with the availability of both Newport News and Norfolk Naval Shipyard this is not a controlling factor.

In a 1978 report 1/ we pointed out that the current size of the Navy's shipyard complex has evolved without adequate consideration of mobilization requirements. In the report we also stated that in determining its shipyard needs, the Navy should consider existing private yards.

Section 809 of the Defense Industrial Reserve Act of 1973 (P.L. 93-155) clearly states that for mobilization planning, Government-owned plants are to be held to the minimum requirements for immediate use in time of national emergency and that to the maximum extent practicable, reliance will be placed upon private industry for support of defense production.

1/Naval Shipyards--Better Definition of Mobilization Requirements And Improved Peacetime Operations Are Needed; LCD-77-450; March 31, 1978.

OTHER ISSUES

In addition to the issues I have already discussed, the Deputy Secretary of Defense cited two issues that he believed attest to the "softness" of the cost estimates; namely opportunity costs and productivity. I would like to briefly comment on these issues.

Opportunity costs

The Navy said that assigning the Saratoga to either Philadelphia or Newport News would permit management to allocate overhead costs on a broader base.

Newport News estimated that \$18.2 million in Government costs to other work would be avoided if it received the Saratoga and could distribute its fixed overhead costs over a greater direct labor base. Neither we nor the Navy have reviewed this estimate.

The Navy claims that the labor rates at Philadelphia will increase between \$20 to \$27 per day if the Saratoga is not sent to Philadelphia. The Navy, therefore, calculated that about \$44 million could be avoided by doing the work at Philadelphia. The Navy also stated that these were unofficial projections.

The Navy pointed out that although these estimates resulted in a net advantage of \$25.8 million to Philadelphia, they were not used in the study because

- a. There is no way of predicting with certainty what other work would occur in either yard in the absence of the carrier SLEP work (and the resultant overhead effects are therefore unpredictable).
- b. It is not clear that the \$18.2 million and \$44 million overhead cost estimates are comparable costs (i.e., include the same cost elements).
- c. The present study has not reflected the costs associated with equipment depreciation and/or interest expenses at Philadelphia (such costs are implicit in the overhead rates of commercial activities).

We recognize that these costs are difficult to quantify precisely but if the total costs to the Government are to be known we believe that the assumptions required to make the estimates should be stated clearly and attempts should be made to determine the costs.

There are other opportunity costs, which we also recognize are difficult to quantify, but which should be considered such as

1. The increased costs and negative morale impact of assigning the service life extension program to Philadelphia since two thirds of all Atlantic Fleet carriers are homeported in Norfolk. The Chief of Naval Operations considered this a relevant factor.
2. The advantage of assigning over 1,100 sailors to the Saratoga during the service life extension program versus making better use of these scarce manpower assets elsewhere in the fleet.
3. The effect on labor rates at shipyards from which work was pulled in order to increase the workload at Philadelphia.

Productivity

The Navy study recognizes a productivity advantage to Newport News by assuming the same amount of productive labor days at both shipyards even though many direct labor charges at Newport News are charged as overhead at Philadelphia. In commenting on the Navy study the Chief of Naval Operations said that it is reasonable to assign a productivity advantage to Newport News in view of that yard's experience in the construction and overhaul of large ships and the fact that Newport News will not be required to respond to high priority emergency work, as Philadelphia would. The Chief of Naval Operations further added that

"Though difficult to assess, the advantage is real and should not be ignored if the true comparison of costs is to be made."

According to the Navy, the advantage to Newport News is imprecise but appears to be about 15 to 20 percent. The advantage was derived primarily from a productivity comparison made for the Navy (not GAO) of submarine overhaul work done at a private (Newport News) and a public yard (Bremerton).

We recognize that to precisely determine a productivity advantage of one shipyard over another would be difficult. We believe the Navy's rationale is logical and other studies could be cited in support of this position. For example,

Booz Allen studies in 1972 and 1977, concluded that it is cheaper to construct and overhaul ships in private yards. A 1971 Ernst & Ernst study came to a similar conclusion.

In summary Mr. Chairman, we recognize that this decision is a complex one. We certainly do not claim to have all the answers. We have worked closely with the Navy in this review. As we see it, it comes down to which assumptions should be used. We have given you our reasons for and against certain assumptions. Based on the assumptions we used, we believe the current Navy figure of \$80 million in favor of Newport News is more realistic. We hope that we have helped you in sorting through a myriad of cost data.

Mr. Chairman, this concludes my prepared statement. We will be happy to answer your questions at this time.

VARIOUS COST OPTIONS
PRESENTED IN THE REVISED
NAVY STUDY

Philadelphia

	<u>Without Wage Reform</u>			<u>With Wage Reform (note a)</u>		
Civil Service retirement factor (percent)	<u>20.4</u>	<u>14.1</u>	<u>7.1</u>	<u>20.4</u>	<u>14.1</u>	<u>7.1</u>
Cost with ships force (millions)	<u>\$556</u>	<u>\$543</u>	<u>\$529</u>	<u>\$537</u>	<u>\$525</u>	<u>\$512</u>

Newport News

With ships force (millions)	<u>\$476</u>	<u>\$476</u>	<u>\$476</u>	<u>\$476</u>	<u>\$476</u>	<u>\$476</u>
Without ships force (millions)	<u>\$524</u>	<u>\$524</u>	<u>\$524</u>	<u>\$524</u>	<u>\$524</u>	<u>\$524</u>

a/Public Law 92-392 (Subchapter IV, Chapter 53, Title 5 U.S.C.) established the comparability principle for blue-collar employees. Current Government blue-collar wages are higher than comparable wages in local wage areas. Reform has been proposed, but no specific legislation is pending.

ANALYSIS OF THE NAVY'S REVISED COST ESTIMATES

<u>Location</u>	<u>Cost element</u>	<u>Amount in GAO report</u>	<u>Amount in Navy's latest study</u>	<u>Difference</u>
		------(millions)-----		
Philadelphia with wage board reform	Basic shipbuilder conversion, contract modifications, and escalation	\$389.2	\$350.7	\$-38.5
	Reserves for F-14 mbds.	5.0	5.0	0
	Government-furnished material, services, and test	67.0	67.0	0
	Military personnel	85.6	82.0	-3.6
	Facilities and training	0	2.0	2.0
	Corporate taxes lost	14.2	18.1	3.9
	Additional retirement costs (note a)	0	11.9	11.9
	TOTAL	<u>\$561.0</u>	<u>\$536.7</u>	<u>\$-24.3</u>
Philadelphia without wage board reform	Basic shipbuilder conversion, contract modifications, and escalation	\$405.5	\$368.9	\$-36.6
	Reserves for F-14 mods.	5.0	5.0	0
	Government-furnished material, services, and test	67.0	67.0	0
	Military personnel	85.6	82.0	-3.6
	Facilities and training	0	2.0	2.0
	Corporate taxes lost	14.2	18.1	3.9
	Additional retirement costs (note a)	0	12.8	12.8
	TOTAL	<u>\$527.3</u>	<u>\$555.8</u>	<u>\$-28.5</u>
Newport News	Basic shipbuilder conversion, contract modifications, and escalation	\$311.1	\$315.4	\$ 4.3
	Reserves for F-14 mods.	5.0	5.0	0
	Government-furnished material, services and test	67.0	67.0	0
	Military personnel	85.6	82.0	-3.6
	Contract administration	3.4	3.6	0.2
	Facilities and training	0	3.0	3.0
	TOTAL	<u>\$472.1</u>	<u>\$476.0</u>	<u>\$ 3.9</u>

a/Amounts shown in GAO's report used the 14.1 percent factor for retirement. This is the additional costs using the 20.4 percent factor.

Basic shipbuilder conversion,
contract modifications, and
escalation

As indicated above, the largest difference in cost estimates between the GAO report and the Navy's revised cost estimates is in this cost element for Philadelphia. The primary reason for this difference is that the Navy decreased the daily labor and overhead rates for Philadelphia. The shipyard claimed that the daily rate would be less than previously estimated because the overhead costs would be spread over an increased direct labor workload. We have not reviewed the Navy's revised cost estimates, but did note that a similar adjustment was not made to the Newport News estimates.

The difference of \$4.3 million between our estimate and the Navy's revised estimate for Newport News resulted primarily from the Navy's decision to now assume that a portion of the work would be done in Newport News' north yard facilities. As stated on page 4 of our report, because the north yard facilities are newer, the use of these facilities increases the overhead costs. We have not reviewed the Navy's revised cost estimates.

Military personnel costs

As indicated on page 11 of our report, the Navy recomputed the military personnel costs at \$82 million using more recent cost information. We agree with the Navy's latest cost estimate.

Facilities and training

As indicated on page 12 of our report, these cost elements were not included in the Navy's original cost study, but should have been included. We have not reviewed these Navy cost estimates.

Corporate taxes lost

The difference of \$3.9 million in our cost estimate and the Navy's revised estimate resulted from the Navy's changes to the estimated costs at Newport News.

Additional retirement costs

As stated on page 13 of our report, the Navy's original estimates and our estimates were based on the Office of Management and Budget's Civil Service retirement cost factor of 14.1 percent. However, this factor does not fully recognize the total Federal retirement costs. The Office of Management and Budget has estimated that the Government's portion of the cost of retirement systems is 20.4 percent of pay. We believe this factor is certainly more appropriate and should be used in the cost comparison.

Contract administration

The difference of \$.2 million between the Navy's revised estimates and our estimates resulted from the Navy's decision to use the 20.4 percent for retirement in the revised estimates rather than the 14.1 percent factor. We agree with the Navy's revised cost estimate.

GAO's Evaluation of
William N. Lanen's Critique of GAO's
PRIOR REPORT

On January 2, 1979, William N. Lanen, a graduate student at the Wharton School, University of Pennsylvania, issued his report "A Critique of the GAO report 'Extending the Service Life of Aircraft Carriers--Where Should The Work Be Done?' " Mr. Lanen undertook this review at the request of the City of Philadelphia.

Mr. Lanen qualifies his report as follows:

- He did not have access to the Navy or GAO data, therefore had to make a number of assumptions. "To the extent that the assumptions I have used are inaccurate, the reader may substitute alternatives."
- "Because I did not have access to either the individuals responsible for the analyses or to the documents used, the process as I understand it may not reflect accurately the actual process followed." (emphasis added)
- "Before going into the detailed analysis, the reader is reminded that this review was conducted without discussing the issues raised below with those in GAO responsible for the preparation of this report nor

with any attempt to verify the consistency of the methods employed by either GAO or the Navy with relevant government regulations." (emphasis added)

GAO note: We have attempted to relate Mr. Lanen's figures to those in our report, and where necessary have made adjustments and explained the reasons for these adjustments.

GAO ANALYSIS OF THE LANEN STUDY

<u>Location</u>	<u>Cost element</u>	<u>Amount included in the Lanen Study</u>	<u>GAO Adjustment</u>	<u>Revised estimate</u>
		----- (millions) -----		
Philadelphia with wage board reform	Basic shipbuilder conversion and contract modi- fication allow- ance	\$ 341.8	\$ 22.2	\$ 364.0
	Projected esca- lation	0	30.2	30.2
	Government-fur- nished materi- al, services, and test	67.0	0	67.0
	Military person- nel	85.6	-3.6	82.0
	Corporate taxes lost	0	14.2	14.2
	Total	\$ 494.4	\$ 63.0	\$ 557.4
Newport News	Basic shipbuild- er conversion and contract modification allowance	\$ 343.9	\$-65.8	\$ 278.1
	Projected esca- lation	0	38.0	38.0
	Government-fur- nished materi- al, services, and test	67.0	0	67.0
	Military person- nel	76.2	5.8	82.0
	Contract admini- stration	3.4	0	3.4
	Total	\$ 490.5	\$-22.0	\$ 468.5

Basic shipbuilder conversion costs

As indicated in our report and the Lanen study, this cost element includes the total estimated costs for shipbuilder labor, overhead, material, and basic change orders expressed in dollars for the base month period. For Newport News, the amount also includes profit.

Labor and overhead

We increased the Philadelphia labor and overhead cost by \$22.2 million and reduced the Newport News costs by \$65.8 million.

We increased the Philadelphia labor and overhead costs because Lanen

- used a lower number of total labor days than the Navy's estimates,
- used a lower labor day rate than the Navy's estimates,
- used a higher amount for shipbuilder material than the Navy's estimates,
- used a lower factor for contract modification allowance than provided by Navy guidance.

We decreased the Newport News labor and overhead costs because Lanen

- used a lower number of total days than the Navy's estimates,

- assumed that the ship's crew would do 295,000 labor days of work, whereas 395,000 labor days should have been used to make it consistent with the Philadelphia assumption,
- used the Navy's original labor day rates rather than GAO's rates which are also used by the Navy in its latest cost study,
- used a higher amount for shipbuilder material than the Navy's estimates,
- used a lower factor for contract modification allowance than provided by Navy guidance.

Projected escalation

Lanen excluded this cost element from his study stating

"To the extent that the price increases are due to inflation and not to changes in relative price, this category is not necessary for a cost analysis since the analysis can be conducted in real terms."

We added back the estimated escalation costs of \$30.2 million for Philadelphia and \$38 million for Newport News. This cost element should be included to reflect the total estimated costs for the duration of the program.

Military personnel costs

We decreased the estimated military personnel costs by \$3.6 million at Philadelphia and increased them by \$5.8 million at Newport News. We used the Navy's latest estimates of the military personnel costs using a ship's crew work package of 395,000 labor days of work at both locations.

Lanen used 295,000 labor days of work by the ship's crew at Newport News because of the Newport News position that it would not want to use the crew to the extent planned at Philadelphia.

The Navy is preparing two work packages--one for the shipyard and the other for the ship's crew. According to the Navy, the ship's crew work package will be 395,000 labor days and it would not use the crew for the Lanen alternative. The latest Navy study recognizes that there are 2 alternatives for Newport News--use of the crew for 395,000 and no crew. We believe use of the crew should be used for the cost comparison because it makes the same assumptions as for Philadelphia.

Corporate taxes lost

Lanen excluded this cost element from his study stating that "this is not a relevant cost." We increased the Lanen cost estimate for Philadelphia to include this cost element. OMB Circular A-76 specifies that the total

costs to the Government should be included and identifies this cost element as one which should be included. We agree with the OMB position.