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NAVY MODERNIZATION

Alternatives for Achieving a More Affordable Force

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Mr. Chairman and Members of the Subcommittee:

We appreciate the opportunity to be here today to discuss the affordability of the Navy's recapitalization program and alternatives that would result in a more affordable Navy. Before I discuss specifics, let me summarize our views on these issues.

The Navy will be asking Congress for billions of dollars in the coming years to recapitalize the fleet and maintain the defense industrial base. Even if the Congress authorizes the programs being requested, the Navy will face an affordability problem. Past experience strongly suggests that some costs will be higher than projected and some savings will fail to materialize. More importantly, we believe that there are alternatives to the Department of Defense (DOD) and Navy proposals that could effectively protect national security at a significantly lower cost. These alternatives include using less costly means to provide overseas presence, using existing aircraft and missiles for deep attack, and changing shipbuilding industrial base-related decisions.

BACKGROUND

To realize the strategy and force structure articulated in DOD's Bottom-Up Review, the Navy plans to decommission ships and aircraft squadrons, reduce its authorized personnel, and eliminate unnecessary support facilities. Table 1 shows the number of ships, submarines, and aircraft squadrons that the Navy plans to have decommissioned by 1994 and 1999, respectively.

Table 1: Decommissioned Ships, Submarines, and Aircraft Squadrons

	1985-94	1995-99
Ships	266	68
Submarines	67	39
Aircraft Squadrons	94	39

As part of this drawdown, the Navy plans to completely eliminate some ships and aircraft from its inventory--such as the FF-1052 class frigates and the A-6 attack aircraft.

By making these significant reductions, the Navy hopes to produce a balanced and affordable Navy for the next century. It also hopes to protect major procurement programs such as the DDG-51, CVN-76, new attack submarine, SSN-23, F/A-18 E/F, medium lift alternative aircraft, and LPD-17 (LX).

From fiscal year 1988 through 1994 the Navy's total obligation authority declined from $126 billion to $79 billion (a 37-percent decrease in constant 1995 dollars). During the same period, the Navy's procurement account declined from $45 billion to $17 billion (a 63-percent decrease in constant 1995 dollars).

Table 2 shows that the Navy's total obligational authority is projected to increase slightly from fiscal year 1995 through 1999. This is not enough to keep overall Navy funding from decreasing after inflation. The procurement account is projected to grow by about 50 percent from $16.6 billion in fiscal year 1995 to $24.8 billion in 1999. Aircraft procurement and shipbuilding and conversion are projected to increase the most. This will require decreases in other appropriation accounts.

Table 2: Navy[a] Obligational Authority (Fiscal Years 1995-99)

Dollars in millions

Account	1995	1996	1997	1998	1999
Military personnel	$25,106	$23,958	$23,528	$23,533	$23,915
Operations and maintenance	24,055	21,158	20,894	20,711	21,619
Procurement	16,646	18,500	19,922	25,094	24,822
RDT&E[b]	8,935	8,433	7,847	7,281	6,966
Military construction	2,150	2,953	1,511	1,706	1,157
Family housing	1,083	1,212	1,241	1,221	1,269
Revolving and management funds	609	622	1,169	619	2
Total	**$78,583**	**$76,837**	**$76,111**	**$80,154**	**$79,750**
Constant 1995 dollars	$78,583	$74,868	$72,136	$73,868	$71,454

[a]Includes Marine Corps.

[b]Research, development, test, and evaluation.

The Navy plans to spend about $120 billion beyond 1999 to complete programs such as the F/A-18E/F and DDG-51 that are in production during the period 1995 through 1999. However, this does not include the procurement costs for planned new multibillion acquisitions. The Navy estimates that aircraft and ship procurement beyond 1999 will average $3.5 billion more per year than the average for the period 1995 through 1999. Since the average annual procurement for aircraft and ships for this period is $14 billion, this would represent an increase of about 25 percent.

NAVY AFFORDABILITY PROBLEMS

The Navy acknowledges significant risks in its ability to pay for its procurement plans. It identified four areas of risk as the most serious: unforeseen changes in the world security environment that require more than currently programmed assets; unanticipated cost growth in future systems and programs due to rising inflation and industrial base problems; increased readiness costs due to unforeseen contingency operations; and underestimated costs arising from the Base Closure process. We agree that the Navy has significant risks in its procurement plans. First of all, DOD's projected expenditures already exceed its projected budgets. Secondly, there is no reason to expect that DOD and Navy experience with cost growth will not continue. Thirdly, the savings the Navy expects over the next 5 years likely will not materialize.

Program for Fiscal Years 1995-99 Is Over Budget

DOD has acknowledged that its defense program for fiscal years 1995 through 1999 is over budget by about $20 billion. DOD indicates that the gap may be closed because of lower inflation rates over the 5-year period. However, we believe inflation could also increase and widen the gap. Assuming that the $20 billion gap remains, the Navy's share could be about $6 billion.

Weapons Systems Cost Growth May Be Underestimated

In the past, DOD and the Navy have been overly optimistic in projecting the cost of major weapons systems. In August 1992 we reported that the potential total cost for completing 165 ships under construction had increased by 24 percent. A 1993 RAND Corporation report showed that cost growth of 200 major weapons systems, including numerous Navy systems, averaged about 20 percent over a 30-year period despite several initiatives intended to mitigate such growth. What follows are examples of several of the Navy's current major weapons system acquisitions that have experienced greater cost growth than this historical average:

-- In September 1992, we reported that the cost estimates for the first three ships built under the DDG-51 shipbuilding contracts were $1.1 billion, double the original cost estimates.

-- In August 1993, we reported that the design cost estimate more than doubled and the construction cost estimate increased by 45 percent for the first Seawolf submarine (SSN-21). As of December 1993, the total construction cost was estimated at $1.1 billion, 59 percent over the original estimate.

-- In August 1993, we reported that three Navy supply ships had experienced cost growth of over 42 percent resulting in over $300 million in claims by the shipbuilder.

-- In January 1994, we reported that the Navy could invest twice the original estimate to develop the V-22 tilt-rotor aircraft--from $2.5 billion to $5 billion. In December 1989, DOD determined that the V-22 would cost $42 million each, which at that time was not considered affordable compared with other helicopter alternatives. The Navy now estimates its V-22 variant could cost between $49 and $64 million each.

Included in the Navy's fiscal years 1995-99 research and development and procurement accounts is about $105 billion for weapons systems. On the basis of historical experience of 20-percent cost growth for weapons systems, it is not unreasonable to expect the total cost of Navy systems alone to grow by $20 billion or more above the estimates included for the 5-year period.

The cost of weapons systems beyond 1999 may be an even greater problem. As mentioned earlier, the Navy already plans to spend $120 billion on the F/A-18E/F and other systems. These systems will probably experience additional cost growth. Moreover, the $120 billion does not include the cost of a new attack submarine, a new tactical fighter currently being developed in the Joint Advance Strike Technology program, and the aforementioned variant to the V-22.

Environmental Cleanup Costs May Be Understated

According to the Congressional Budget Office (CBO), DOD plans to spend about $12 billion on environmental restoration during the period 1995-99. These costs are for cleanup programs, which are used to fix problems at active or closed bases or on ships. In addition, DOD's Future Years Defense Plan for fiscal years 1995-99 includes about $9 billion for environmental compliance programs, which are used to resolve pollution problems and comply with current state and federal regulations.

We have issued several reports on environmental cleanup and compliance issues indicating that total environmental costs could be higher than DOD's estimates. We reported that the actual cost cannot be determined because not all sites have been identified; contamination studies have not been completed; additional work is required at some installations; and the longer cleanup activities take, the more expensive they will be. Also, DOD's estimates for compliance costs do not include all expenses. Moreover, although DOD estimated that its compliance costs will decline between 1993 and 1999, we believe they are likely to increase because new requirements cannot always be predicted and DOD has generally underestimated costs to comply with environmental regulations.

CBO recently estimated that DOD's environmental cleanup costs could be $20 billion higher than that estimated for fiscal years 1995 through 1999. In recent years the Navy's portion of DOD's

estimated environmental cleanup costs has been about 20 to 25 percent.

Base Closure Savings May Be Overestimated

The Navy plans net savings of about $1 billion from 1995 through 1999 from base closures and realignments. Our work shows that these savings may be optimistic. For example, we reported in March 1993 that DOD's budget estimates for the base closures and realignment decisions made in 1988 more than doubled between fiscal years 1991 and 1993 largely because DOD's projections for land revenues declined dramatically. Moreover, Navy officials recently indicated that some of the base closure savings identified for the 5-year period will not come to fruition until after 1999.

Consolidations and Management Improvements May Be Overstated

The 1989 Defense Management Report (DMR) proposed a series of consolidations and management improvements that were estimated to save tens of billions of dollars in support and overhead costs. In past work on the DMRs, we have questioned whether all of the estimated savings could be achieved. Our work on specific initiatives found that up to 82 percent of the planned savings were based on management judgment and were not always supported by historical facts or empirical cost data. In April 1994 we reported that DMR savings for DOD may be overstated by as much as $32.2 billion for fiscal years 1994 through 1999. It is not clear how much of the overstated savings will impact the Navy, however, the Navy's expected share of past DMR savings was about one-third of the total.

ALTERNATIVES FOR A MORE AFFORDABLE NAVY

Because the Navy is unlikely to have the funds necessary to execute its current plan, we believe the Congress, DOD, and the Navy should consider alternatives to provide overseas presence and deep strike missions. In addition, we believe that savings may be possible if industrial base-related decisions are changed.

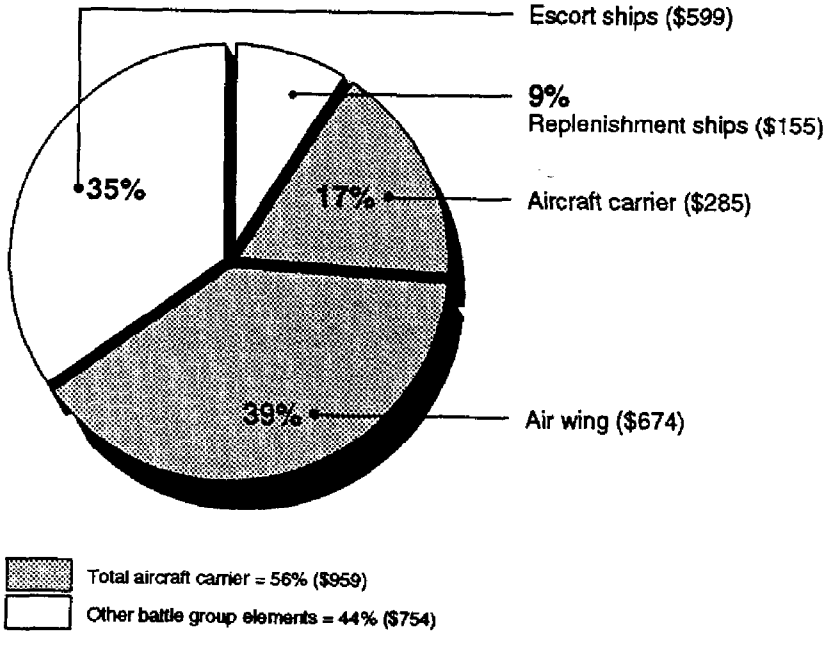
Navy Could Reduce Number of Carriers Used for Overseas Presence

Overseas presence in major world regions has been met primarily by aircraft carriers and their battle groups. DOD and the Navy want to keep two more carriers than are needed to prosecute two nearly simultaneous regional conflicts. According to DOD and the Navy, these carriers are needed to provide overseas presence. In the Bottom-Up Review DOD states that 12 carriers (11 active plus 1 operational reserve) would provide continuous presence in one region and about 8 months presence in the other two regions. According to the Bottom-Up Review, a 10-carrier force would be insufficient because the Navy could provide continuous presence in

one region but only 6 months presence in the other two regions. The Bottom-Up Review does not explain why 4-month gaps in two regions is acceptable and 6-month gaps are not.

Our work suggests the Navy could reduce the number of carriers and achieve substantial savings. In our February 1993 report on carrier battle groups, we said that relying on aircraft carriers for overseas presence is costly. We estimated that a notional carrier battle group--consisting of an aircraft carrier, combat and support aircraft, surface combatants, attack submarines, and logistics ships--costs almost $1.7 billion (in fiscal year 1995 dollars) each year to acquire, operate, and support. This cost increases significantly when indirect costs are considered. Examples of these are the Navy's physical infrastructure of bases and air stations and the personnel assigned to shore command, support functions, and reserve units. Figure 1 breaks down the battle group's annualized direct costs for each of the group's major components. The aircraft carrier and its air wing make up about 56 percent ($959 million fiscal year 1995 dollars) of the costs of the group, with the air wing contributing the largest part of carrier costs.

Figure 1: Breakout of the Annualized Costs for a Carrier Battle Group



Because of Navy operating, maintenance, and personnel policies, it takes a significant number of carriers to maintain presence in each of the three major regions. For example, as many as eight carriers

are required to maintain one carrier more or less continuously in the Indian Ocean/Arabian Sea at an annual cost of nearly $14 billion.

In our report, we showed that there are opportunities for using less costly ways to meet overseas presence requirements without unreasonably increasing the risk to U.S. national security. Using groups centered around highly capable surface combatants and amphibious assault ships could provide a very credible and capable presence under most circumstances at a much reduced cost. An example taken from our report illustrates the cost differences of operating alternative mixes of carrier battle groups and surface action groups.[1] As shown on table 3, the annual cost of a 10-carrier force level with two surface action groups would be about $2.7 billion less than at a 12-carrier force level without any surface action groups.[2]

Table 3: Annual Costs of Carrier Battle Group and Surface Action Group Force Mixes

Fiscal year 1995 dollars in millions

Carrier battle groups		Surface action groups		
Number	Cost	Number	Cost	Total cost
12	$19,252	0	$0	$19,252
11	17,587	1	337	17,923
10	15,922	2	673	16,595
9	14,256	3	1,010	15,266

[1]An illustrative carrier battle group consists of an aircraft carrier, its air wing of about 80 aircraft, and about 9 escort ships, including surface combatants, attack submarines, and logistics support ships. An illustrative surface action group consists of a cruiser, two destroyers, a frigate, and an attack submarine.

[2]We used composite costs to characterize the cost of different force components (i.e., ship types and carrier air wings) based on the Navy's force structure in fiscal year 1990. These cost estimates are annualized to reflect the average cost each year for the force component over its expected service life. Our calculations do not include the cost of the underway replenishment group.

We believe that expanded use of noncarrier groups is possible because of the increased capabilities of the ships and weapon systems in these groups. The surface combatants, attack submarines, and amphibious ships now entering the fleet are significantly more capable both offensively and defensively than those that made up most of the force during the Cold War. New multipurpose amphibious ships can provide a limited, but effective strike capability with Harrier aircraft, armed helicopters, and expanded command and control facilities. The Navy currently has 11 of these moderately-sized "aircraft carriers," which are comparable to carriers of other world navies. Surface combatants now entering the fleet can provide significant strike, anti-air, anti-surface, and anti-submarine capabilities, making them highly suitable for regional contingencies. Improvements in Tomahawk cruise missiles, the Vertical Launching System, and the AEGIS anti-air weapon system are adding more capability.

Our work on the Tomahawk cruise missile shows that it can provide a viable strike capability in the absence of carrier-based aircraft. For example, in January 1993, Tomahawks were successfully used to strike the Zafraniyah nuclear facility in Iraq. Tomahawks were chosen to avoid the potential loss of pilots or aircraft. They were used again in June 1993 to strike the Iraqi intelligence service in Baghdad. An aircraft carrier was not present in the theater at that time.

By the end of this decade, the Navy will have about 130 ships and submarines with Tomahawk capabilities. Tomahawk-capable warships and other service assets, such as Air Force bombers, may provide sufficient overseas presence to mitigate the need for a 12-carrier force and thereby allow the Navy to achieve considerable budgetary savings without incurring unreasonable risks.

Plan to Add Limited Deep Strike Capability to F-14s Is Questionable

The Navy plans to spend over $2 billion to add limited deep strike capability to 210 F-14A/B/D aircraft. The upgrade will give the aircraft a (1) limited ground attack capability to include a laser forward-looking infrared targeting system to more precisely locate and attack targets with laser-guided smart bombs; (2) modified cockpit systems to enable the use of night vision devices; and (3) improvements to the defensive electronics countermeasure system. Based on our work to date, it is questionable as to whether the Navy should proceed with it for the following reasons:

-- With the exception of 54 F-14Ds, the upgraded F-14s will not be as capable as the Navy's F/A-18C and A-6E aircraft or the Air

Force's F-15E aircraft.[3] None of the modified F-14s will have stand-off weapons capabilities like the F/A-18C aircraft.

-- Upgraded F-14s will not be available to fill a 2-year capability gap between the last A-6E retirement scheduled for 1997 and the introduction of the modified F-14s scheduled for 1999. At least one aircraft carrier is scheduled to deploy without A-6Es or upgraded F-14s later this year.

-- According to the Secretary of the Navy, 85 percent of the Navy's potential targets are within 200 miles of shore, within the range of existing F/A-18C aircraft.

-- There are other ways of reaching targets beyond the 200 miles. For example, Tomahawk cruise missiles, with a range of over 650 miles, can strike strategic targets at night, in adverse weather, or in heavy air defenses. Other aircraft such as Air Force bombers could also strike these distant targets.

On table 4, we compare the F-14A/D aircraft capabilities with those of other selected deep strike aircraft.

[3]The A-6E is being retired from the force.

Table 4: Selected Comparison of A-6E, F/A-18C, F-14 Block I, and F-15E Capabilities

Capability	Aircraft				
	A-6E	F/A-18C	F-14A Block I	F-14D	F-15E
Air-to-ground					
All- Weather					
Ground mapping radar	●	●		●	●
Target FLIR	●	●	●	●	●
Navigation FLIR		●			●
Terrain avoidance	●	●			●
Targeting laser	●	●	●	●	●
Moving map display		●			
Radar reconnaissance		●			
Photo reconnaissance			●	●	
Precision-guided stand-off weapons					
Air-to-ground					
Laser-guided bombs	●	●	●	●	●
HARM	●	●			
Harpoon	●	●			
Maverick	●	●			●
SLAM	●	●			
Walleye	●	●			
JDAM/JSOW		●			●

We note the interest of the House and Senate Armed Services Committees in directing the Navy to maintain some deep strike capability aboard its carriers during the interim between the retirement of the A-6E aircraft and development of a new strike aircraft. The Committees directed the Navy to modify at least 54 F-14D aircraft to provide a ground strike capability similar to the Air Force's F-15E. The Navy is not seriously considering adding F-15E capabilities to its F-14s because the Navy believes it will be too expensive. To add F-15E capabilities to the F-14, the Navy believes that it will cost considerably more than the $2 billion upgrade.

SAVINGS MAY BE POSSIBLE IF NUCLEAR SHIP CONSTRUCTION DECISIONS ARE CHANGED

The Navy wants to build a new nuclear aircraft carrier (CVN-76) in fiscal year 1995, and a third Seawolf submarine in fiscal year 1996 primarily to support the nuclear shipbuilding industrial base at two shipyards. In the Bottom-Up Review, DOD considered consolidating nuclear work at a single shipyard and found that substantial costs could be saved, but it rejected this option.

DOD and the Navy have not provided information needed to judge the overall cost/benefit implications of moving to nuclear shipyard consolidation. DOD has not identified which critical vendors and skills would be lost, the cost of reconstituting those vendors and skills, or alternative ways of preserving them. DOD has also not explained how nuclear work currently conducted by the public shipyards would be managed under this option. Without these industrial base assessments it is difficult to determine the optimum approach to achieve the Navy's force and modernization objectives in the most cost effective manner.

Bottom-Up Review Rejects Shipyard Consolidation

In the Bottom-Up Review, DOD examined the potential budgetary savings and other implications of consolidating nuclear carrier and submarine construction at a single shipyard. It recognized that reduced procurement rates had resulted in excess production capacity at the shipyards. Under one consolidation scenario, DOD reported that $1.8 billion would be saved during the period 1995 through 1999 if all nuclear construction was done at one shipyard. Under another consolidation scenario, DOD concluded that CVN-76 could be delayed until fiscal year 2000 and the risk to the industrial base could be mitigated if certain actions were taken--such as a "smart shutdown" of certain carrier construction capabilities combined with rescheduling delivery of carriers under contract, overhauls, and other work like a new nuclear attack submarine. In the Bottom-Up Review, DOD rejected the consolidation option because it was concerned about the resulting loss of competition as well as other long-term defense industrial base and national security needs. Because DOD has not provided the basis for its position it is not clear what it meant by "loss of competition". Only one shipyard currently builds nuclear aircraft carriers and DOD has directed future nuclear submarine work to be done at the other nuclear shipyard.

It is also unclear on what basis DOD determined that two nuclear shipyards were needed to protect "the long term defense industrial base and national security".

Alternative Nuclear Shipbuilding Strategies Could Achieve Budgetary Savings

We have analyzed several carrier force structure options to building CVN-76 in fiscal year 1995. We compared the cost of deferring carrier construction until 1998 or 2000 with the cost of building CVN-76 in fiscal year 1995 as currently planned by the Navy. As shown in table 5, budget authority is about the same from 1995 to 1999 whether the CVN-76 is built in 1995 or 1998. But budget outlays would be about $1.7 billion less if CVN-76 were built in 1998 versus 1995. Both budget authority and outlays would be less during this period if CVN-76 were deferred to the year 2000.

Table 5: Nuclear Carrier Force Structure Investment Options

Fiscal year 1995 dollars in billions

Carrier Acquisition Strategy Option	Budget Authority			Outlays		
	FY95-99	FY95-15	FY95-35	FY95-99	FY95-15	FY95-35
Bottom-Up Review - Buys CVN-76 in FY-95	$5.8	$32.6	$65.8	$4.4	$27.2	$58.7
Defer CVN-76 until FY-98	$6.3	$29.7	$60.7	$2.8	$26.7	$57.1
Defer CVN-76 until FY-00	$2.0	$30.4	$61.4	$2.0	$27.7	$56.8

If building CVN-76 is deferred to either 1998 or 2000, it may be necessary to schedule other work at Newport News Shipyard such as overhauls or refuelings in order to maintain critical skills. On the other hand if a decision is made to consolidate all nuclear work at one shipyard, nuclear submarine construction could help mitigate the loss of critical skills.

We have also analyzed acquisition options for attack submarines. Our analysis shows that for force structure purposes the Navy would not need to begin to build any new submarines until sometime after the turn of the century. Therefore, one scenario under the consolidated shipyard approach could be for the Navy to begin building CVN-76 in 1995 as planned and not build the third Seawolf submarine.

These cost savings options need to be judged along with the critical industrial base information. We believe Congress should ask DOD and the Navy to provide this information.

Building Conventional Carriers Is Considerably Less Expensive Than Building Nuclear Carriers

Congress has recently directed us to evaluate the cost-effectiveness of conventional versus nuclear carriers and submarines. As part of this evaluation we have been asked to evaluate the total cost to acquire, operate, support, and dispose of these ships. This audit will start soon.

Our preliminary analysis shows that it is considerably less expensive to acquire conventional carriers compared with acquiring nuclear carriers. This analysis did not include any operational related issues. Table 6 shows that if the Navy were to buy CVN-76 in 1995 as planned and then begin to acquire conventional carriers, considerable savings could be achieved in the years beyond 1999.

Table 6: Conventional Carrier Force Structure Investment Options

Fiscal year 1995 dollars in billions

Carrier Acquisition Strategy Option	Budget Authority			Outlays		
	FY95-99	FY95-15	FY95-35	FY95-99	FY95-15	FY95-35
Bottom-Up Review - Buys CVN-76 in FY-95	$5.8	$32.6	$65.8	$4.4	$27.2	$58.7
Buys CVN-76 in FY-95 But Transitions to a Conventional Carrier Construction Program with CVA-77	$5.3	$23.6	$42.9	$4.4	$20.7	$43.6
Replaces All Carriers at Retirement with Conventional Carriers	$2.2	$20.3	$37.0	$1.6	$18.3	$35.6

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Mr. Chairman, this concludes my prepared remarks. I would be glad to answer any questions from you or Members of the Subcommittee.

Attachment I

RELATED GAO REPORTS

DOD Budget: Evaluation of Defense Science Board Report on Funding Shortfalls (GAO/NSIAD-94-139, Apr. 20, 1994).

Navy Aviation: V-22 Development--Schedule Extended, Performance Reduced, and Costs Increased (GAO/NSIAD-94-44, Jan. 13, 1994).

Navy Contract: AOE 6 Shipbuilding Claims Settled But More Delays and Cost Growth Likely (GAO/NSIAD-93-298, Sept. 30, 1993).

Navy Ships: Problems Continue to Plague the Seawolf Submarine Program (GAO/NSIAD-93-171, Aug. 4, 1993).

Navy Carrier Battle Groups: The Structure and Affordability of the Future Force (GAO/NSIAD-93-74, Feb. 25, 1993).

Weapons Acquisition: A Rare Opportunity for Lasting Change (GAO/NSIAD-93-15, December 1992).

Navy Contracting: Cost Growth Continues On Ship Construction Contracts (GAO/NSIAD-92-218, Aug. 31, 1992).

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