

QUARTERLY SAR REVIEW

**A REVIEW OF THE DEPARTMENT OF DEFENSE
JUNE 30, 1982,
SELECTED ACQUISITION REPORT**

**Special Study
September 1982**

**Congress of the United States
Congressional Budget Office**

PREFACE

This study presents the results of a Congressional Budget Office (CBO) review of the Department of Defense's Selected Acquisition Report (SAR) dated June 30, 1982. It provides in a few pages facts and data culled from about 900 pages of SAR information. The study is designed to be used by Congressional staff members working in the area of defense weapons system acquisition. It looks at cost and other changes in all SAR programs for the period from March 31, 1982, to June 30, 1982.

This study was requested by the House and Senate Committees on Appropriations and Armed Services. William Myers, Patrick Haar, and Edward Swoboda of CBO's Budget Analysis Division prepared the paper under the general supervision of James Blum and C.G. Nuckols. Francis Pierce edited the manuscript. Suzie Fominaya typed the several drafts.

September 1982

NOTE

Unless otherwise noted, all dollar amounts are in current (or then-year) dollars.

SUMMARY

The Selected Acquisition Report (SAR) is a quarterly status report from the Department of Defense (DoD) to the Congress on major defense acquisition programs. The current report covers 45 programs. It is one of the most comprehensive and consistent sources of data on defense weapons systems costs. The report is submitted 45 days after the end of the calendar quarter. The SAR presents each system program manager's current "best estimate" of key performance, schedule, and cost goals for the total program. This information provides the best basis for a periodic measurement of the progress achieved for each of these major weapons acquisition programs.

SAR TO EXPAND

Beginning next year, the SAR will provide more information about more acquisition programs at an earlier point in their life cycle. This is because the 1983 Defense Authorization Act (Public Law 97-252) included three major changes in the SAR reporting requirements. The act:

(1) Expands the number of weapons systems for which SAR reports are required by providing firm dollar thresholds for systems that must report and eliminates most of DoD's discretionary authority to determine whether a SAR is required. As a result, the number of systems included in the SAR may increase from an average of 45-50 to as many as 180.

(2) Initiates mandatory reporting of overruns on the major contracts for SAR weapons systems. Previously, reporting was required only for large overruns for total program unit costs and current procurement unit costs.

(3) Reduces reporting requirements for March, June, and September SARs. Next year these quarterly reports need cover only current changes. The long, detailed report is required only for the December reports that include the President's Budget decisions.

THE JUNE SAR

The June SAR reports a relatively small net increase of \$1.6 billion that brings the total cost of all SAR programs to \$452 billion. Usually March, June, and September SARs reflect only small dollar changes. The major program decisions that result in dramatic cost changes usually are made in the budget development cycle and are reflected in the December SAR (published in February) that corresponds to the President's annual budget request.

The two largest categories of cost growth in the June SAR are \$635 million for schedule changes (all for three Air Force programs) and \$569 million for estimating changes (a \$721 million increase for Air Force programs and a \$152 million decrease for Army and Navy programs).

The current SAR includes only part of the costs of the systems covered, for example, the SAR cost estimates for 17 systems exclude at least \$11.5 billion in program costs. Most often these costs are for modifications and military construction but, in the case of the B-1B aircraft, the excluded amounts fund such items as simulators, the component improvement program, and facility improvements. CBO believes that these costs should be included in the estimates because they directly relate to the system being procured.

Program Management Effectiveness

Twenty-nine programs remain on or ahead of planned schedules for delivery of equipment, however, with only sixteen or one-third of the current SAR programs are behind schedule on deliveries (see Table 1). Ten of the 45 SAR programs reported delayed deliveries for at least the third consecutive SAR reporting period. Three others have reported delivery delays in two of the last three SARs. Thirty-four programs continue to meet previously planned milestone schedules. Only eleven programs reported delays in meeting planned major milestones. Five of these programs experienced milestone delays for three consecutive quarters, while four others reported delays in two of the last three quarters.

Among the many reasons for delivery problems are technical difficulties, material shortages, and strikes. Although these can entail significant costs, they may also have more critical consequences in delaying force modernization and hindering readiness.

Major milestone delays are important for what they suggest about program execution. If initial flight testing of a missile is delayed three months, later testing will probably not of itself involve additional costs. But a delay may be caused by technical, material, or manpower problems that will require additional funds to resolve. Milestone delays may also serve as leading indicators of future delivery delays.

TABLE I. SAR PROGRAMS WITH SCHEDULE CHANGES AS OF JUNE 30, 1982

System	Number of Schedule Milestones Delayed	System Behind Delivery Schedule
Army		
Patriot Missile	2	Yes*
Pershing II Missile	1	Yes*
Fighting Vehicle	--	Yes*
Copperhead Projectile	2	Yes*
DIVAD Gun	1	No
Multiple Launch Rocket System	2	Yes*
Navy		
F/A-18 Aircraft	1	No
LAMPS MK III	1	No
CAPTOR Torpedo System	--	Yes
HARM Missile	2	No
Harpoon Missile	--	Yes**
Phoenix Missile	--	Yes**
Sparrow Missile	--	Yes*
Tomahawk Missile	6	Yes
Trident I Missile	--	Yes
SSN 688 Submarine	--	Yes**
Air Force		
IR Maverick Missile	2	Yes
NAVSTAR Global Positioning System	5	Yes
GLCM Missile	--	Yes*
Sparrow Missile	--	Yes*

SOURCE: Compiled by CBO from the June 30, 1982, SAR.

- * The program is farther behind schedule than it was in the March SAR.
- ** The program was either on schedule or ahead of schedule in March, but is now behind schedule.

Cost of Program Management Problems

While most programs do not show evidence of overall serious cost problems, several have unit cost problems and some have contract overruns.

Large Unit Cost Increases. Three Air Force programs--the GLCM missile, the IR Maverick missile, and the HARM missile--incurred cost growth that increased their total program acquisition unit cost by more than 15 percent over that of March 1981, thereby breaching a reporting threshold established in the fiscal year 1982 Defense Authorization Act, Public Law 97-86. In addition, the Air Launched Cruise Missile program is within 1 percent of exceeding that threshold.

Contract Overruns. Program office data show contracts that are expected to overrun their target prices (see Table 2). Twenty-five programs now report expected contract overruns totalling more than \$3 billion. Relative to the total number of contracts and dollars required for SAR programs, these are small amounts. Each of the contracts in Table 2 is, however, among the six largest for its respective program; many of them are development or early production contracts. While the dollar amount of the cost growth is generally small, cost growth in such contracts could be a warning of potential major cost growth in future production contracts.

Indications of Future Cost Growth

The next section of this report presents notes on individual SAR weapons systems, indicating program changes or technical difficulties that may lead to future cost growth. Where possible, the dollar impact and the reason for the changes are shown. The notes cover such items as delayed delivery of equipment, contract overruns, delays in meeting major milestone schedules, potential performance problems, and costs excluded from the SAR estimates. It is important to note the degree to which the programs and issues mentioned here are the same as those appearing in CBO's reviews of the December 31, 1981, and March 31, 1982 SARs. The systems are presented by service.

TABLE 2. CONTRACTS THAT ARE EXPECTED TO OVERRUN THEIR TARGET PRICE

Program	Number of Contracts	Percent Over Target Price	Total Amount of Overrun (millions of dollars)
Army			
Patriot Missile	2	*	*
Pershing II Missile	1	6	23
UH-60 Helicopter	1	*	*
AH-64 Helicopter	2	*	*
Fighting Vehicle System	3	*	*
M-1 Tank	1	*	*
Copperhead Projectile	2	*	*
DIVAD Gun	1	*	*
Multiple Launch Rocket System	2	*	*
Navy			
F/A-18 Aircraft	4	11-37	808
AV-8B Aircraft	1	2	11
Tomahawk Missile	3	1-38	44
LAMPS MK II SY-STEM	4	2-25	22
SSN-688 Submarine	2	16-77	1,632
CG-47 Ship	5	1-4	33
Sparrow Missile	1	19	7
Trident Submarine	3	*	*
Tactas Sonar	2	3-9	4
FFG-7 Frigate	1	3	7
Air Force			
EF-111A	1	331	240
IR Maverick Missile	2	5-13	21
NAVSTAR Global Positioning System	2	10	14
DSCS III Satellite	1	17	22
ALCM Missile	3	5-9	37
GLCM Missile	4	8-53	84

SOURCE: Compiled by CBO from the June 1982 SARs.

* The amount and percent of the overrun are not included because the estimates are "negotiation sensitive."

ARMY PROGRAMS

PATRIOT

Delivery of production hardware continues to fall farther behind schedule. The program is now behind by 35 missiles (59 percent), 2 fire control sections (66 percent), and 6 launchers (60 percent). The delays were caused by "first-time-through" problems with vendors, materials, and special tool/test equipment. Failure to achieve production rates sufficient to return to the contract delivery schedule could result in higher future contract costs. In fact, the contractor and government estimates for the 1980 contract have increased twice since the December SAR. Although the percent of growth is small, current estimates indicate that the contract will overrun its target price. The amount and percent of the expected overrun are excluded from this review because the estimates are "negotiation-sensitive." An overrun in the 1980 contract could affect future contracts as well. The unfavorable cost trends experienced in the execution of the 1980 contract suggest that current cost estimates for later years may be too low.

The milestones for completion of component/system design confirmation and initial operational capability have slipped one month because of the delay in delivery of production hardware.

The SAR total cost estimate excludes \$293 million, of which \$287 million covers military construction costs for deployment of Patriot to U.S. Army Europe and U.S. Forces Command.

PERSHING II

The first production contract was signed on June 29, almost a month before the first flight test of a development missile. Although the Army's testing schedule has been shortened, testing will not be completed until well after full-scale production is underway. This could result in significantly higher costs if it proves necessary to correct deficiencies.

The first Pershing II flight test, originally scheduled for April, occurred on July 22 and resulted in an inflight failure. The missile failure and the delay in completing the test could cause further delays in the development program and may increase costs.

The number of missile flight tests has been reduced by six missiles. The SAR states that the resulting \$20 million savings in development costs

will be used to help offset an expected \$50 million cost overrun on the development contract. The net effect of reducing the number of missiles to be tested without reducing costs has been to increase 1983 development unit costs by 75 percent from \$8 million to \$13.9 million. The decision to reduce the number of missile flight tests was made before the initial inflight failure.

The SAR current estimate is based on an analysis of prime contractor proposals for the 1982-1983 production quantities. This estimate will be updated in future SARs upon completion of a baseline cost estimate, "should-cost analysis," and contract negotiations.

Delivery of development hardware continues to fall farther behind schedule. The program is now behind by 6 propulsion sections and 11 reentry vehicles.

The government and contractor estimates for the development contract indicate that it will overrun its target price by at least 6 percent or \$23 million.

HELLFIRE

A funding shortfall of \$10.6 million reported in the December 1981 and March 1982 SARs was not identified in the June SAR. The cost estimate is unchanged from the December SAR, and there is no indication that the shortfall has been funded.

A deicing kit will be needed to meet operational requirements. These kits are to be installed in the field, but the cost of the kits is not included in the SAR.

CH-47 MODERNIZATION

The SAR indicates that multiyear procurement (MYP) through fiscal year 1985 is still possible. Because MYP has not been approved, the potential savings are not reflected in the current estimate.

BLACK HAWK (UH-60)

Increased spares requirements are cited as the primary reason for a net increase of \$16.3 million.

The program is 24 helicopters ahead of the procurement delivery schedule as compared with 19 ahead of schedule in the March SAR.

The Hellfire feasibility demonstration was satisfactorily completed on May 20.

The government and contractor estimates for one production contract indicate that it will overrun its target price. The amount and percent overrun are not included in this review because the estimates are "negotiation-sensitive."

AH-64

The current estimate includes contingency funds totaling \$528 million, which were added to the program for the Administration initiative entitled "budget to most likely cost." On the basis of favorable negotiations of early production contracts, the SAR indicates that these funds may now be diverted from the basic program to buy 40-50 additional helicopters. Early commitment of the funds to the purchase of additional aircraft could result in future fund shortages if the "budget to most likely cost" materializes.

Although the two development contracts are currently expected to overrun their target prices by significant percentages, the government and contractor estimates for five production contracts are the same as the target prices. The percent and amount of the overruns on the development contracts are not included in this report because the estimates are "negotiation-sensitive."

The contractor's estimate for one of the development contracts was increased by \$12.4 million, but only \$4.8 million was attributable to contract modifications. The program manager is conducting a detailed review with the contractor to determine the basis for the increase.

The total estimate excludes \$122 million for military construction and research and development, which was included in the February 1982 Congressional Data Sheets. In previous SARs, this exclusion from the estimate was footnoted.

FVS

The total estimate was increased \$7 million to cover increased vehicle contract costs in 1980.

The government and contractor estimates of prices at completion indicate that one development and two production contracts will overrun their target prices. The amount and percent of overrun are not included in this review because the estimates are "negotiation-sensitive." Overruns on these early contracts could affect future contract costs.

A contractor strike caused production delays in both cavalry and infantry fighting vehicles (CFV and IFV). The program is behind schedule by eight IFVs and seven CFVs--a total of 17 percent. Delivery schedules have been revised three times since the September 1981 SAR.

Start-up problems have caused delays in delivery of 25mm guns which is the primary armament on the FVS. The program is 27 guns or 16 percent behind the current revised delivery schedule. The planned deliveries have been revised three times since the September 1981 SAR, which indicated that recovery would be complete by March 1982. The current SAR indicates that recovery will be complete by June 1983—a 15-month delay.

Improper propellant performance has caused a delay in delivery of 200,000 rounds of 25mm ammunition—17 percent of the planned delivery quantity.

The total estimate excludes \$166 million for military construction, which was included in the February 1982 Congressional Data Sheets. Also, the estimate does not include the cost for second-source vehicle assembly or the procurement modification cost necessary to "optimize" the new TOW2 missile.

M-1 TANK

Development/Operational Test III was completed in May 1982. The SAR indicates that all but 2 of the 13 test parameters were met. Powertrain durability and track life did not meet the required specifications. A 4 percent shortfall in powertrain durability is attributed to design and quality control problems. A follow-on powertrain test on five vehicles to validate corrective actions is scheduled to start in July. The SAR indicates that track durability cannot be improved within current state-of-the-art rubber technology.

The initial spares estimates for 1984 and 1985 were reduced by \$53 million because the required spares will be purchased with the replenishment spares budget. Reestimates accounted for an additional reduction of \$100 million. Both of these reductions were partially offset by a \$108 million increase for engineering block improvements. The net result is a \$57 million decrease in the total estimate.

The total cost estimate excludes \$44 million for military construction, which was included in the February 1982 Congressional Data Sheets. The estimate also excludes the research and development costs for the 120mm gun and ammunition, although the last 3,300 M-1 tanks in the program will be armed with this weapon.

The government and contractor estimates of prices at completion indicate that the third-year engine contract will overrun its target price. The amount and percent of overrun are not included in this report because the government estimate is "negotiation-sensitive." The estimated overrun on one contract could be offset by an underrun on another contract.

COPPERHEAD

Initial production test firings have given an overall reliability of 64 percent. Test firings at White Sands Missile Range resulted in 17 "hits" out of 26 rounds. Because of "lower than anticipated reliability" the test firings were interrupted on June 22. After they were resumed on July 6, however, only 30 of 45 firings were successful. Testing was again terminated on July 9. A second reliability demonstration is being planned for a November 1982-January 1983 timeframe.

The total estimate has increased by \$10.4 million to "partially cover" contractor cost growth for 1980 and 1981. The March SAR stated that the contractor had reported a total growth of \$37 million for 1980 and 1981.

The current estimate for 1982 as presented in the SAR is \$141.5 million. The SAR indicates, however, that a preliminary assessment has resulted in an estimate of \$159.5 million or 13 percent growth. In addition, the 1983 program is short by \$55.5 million as a result of an Army decrement of \$15.8 million and contractor cost growth of \$39.7 million.

Delivery of production rounds continues to fall farther behind schedule. The program is now behind schedule by 522 rounds (35 percent) as compared with 117 rounds behind schedule in the March SAR.

The milestone for completion of production validation testing has slipped one month because of scheduling difficulties at White Sands Missile Range. The milestone for initial operational capability has slipped an additional five months to December 1982. This represents a total slip of eight months since the December 1981 SAR. Delays in the delivery of ground laser locator designators, which will also be used with the Hellfire missile, are cited as the primary cause for the schedule slip.

The Army Times (August 23, 1982) reported that the Army has tentatively decided to end production of the Copperhead projectile in 1984 because of unreliability and cost growth.

The total estimate excludes \$748,000 for procurement of Copperhead trainers.

The 1983 Department of Defense Authorization Act deleted funds for the procurement of Copperhead projectiles and authorized \$15 million to cover the cost of terminating the program.

DIVAD GUN

Both Army and DoD production decision milestones (ASARC III and DSARC III) were successfully completed on May 4. The 1982 contract

option for 50 gun systems and related equipment was awarded on May 28.

The government and contractor estimates indicate that one production contract will overrun its target price. Although the percent overrun is small, an overrun on the early production contract could affect future contract costs. The amount and percent overrun are not included in this review because the government's estimate is "negotiation-sensitive."

The total estimate excludes \$135 million for military construction.

MULTIPLE LAUNCH ROCKET SYSTEM

The program is behind the development delivery schedule by one self-propelled loader launcher. The program is also behind the procurement delivery schedule by 78 rounds (29 percent) as compared to 30 rounds in the March SAR. The delay in delivery of procurement rounds is attributed to minor problems in final rocket assembly that also caused one-month delays in the milestones for start of initial production and production qualification testing. The SAR indicates that there is no major impact and that the program will be on schedule by the September SAR.

The government and contractor estimates indicate that one development contract and the 1980 production contract will overrun their target prices by significant percentages. The amount and percent of the overruns are excluded from this review because the government's estimates are "negotiation-sensitive." Although the dollar impact of the overruns is small, they could increase future contract prices.

The total estimate excludes \$142 million for military construction that was included in the February 1982 Congressional Data Sheets. In previous SARs, this exclusion from the estimate was footnoted.

Joint Tactical Information Distribution System (JTIDS)

The Air Force is the executive agent for this joint-service program. This SAR is the first to be submitted to Congress and is divided into Air Force, Army, and Navy/Marine Corps supplements.

Planned procurement costs are to be funded under the Army Data Distribution System (ADDS). The current estimate of \$99.1 million does not include procurement costs, but the SAR indicates that a baseline cost estimate should be completed by July 1982. The results will be shown in a future SAR. It is not clear whether these costs will be included in the total estimate.

The SAR reports that additional development funds are required to fund expanded technology insertion efforts and to support full development of the Army version of a joint system exerciser. If the equipment cannot use the "host system platform" power, environmental protection system, or prime vehicle shelter, additional funds may be required for these items.

NAVY PROGRAMS

F-14

The current estimate has been increased by \$10 million, primarily to cover increased costs of the engine and inertial navigation system spares.

The cost of this system includes provisions for an advanced self-protection jammer whose effectiveness and cost were questioned in a GAO report entitled Self Protection Jammers for Tactical Aircraft--More Effective Solutions Needed (April 22, 1982).

F/A-18

The government and contractor estimates indicate that one development contract and three production contracts will overrun their target prices by 11-37 percent. According to the DoD estimates, the overruns for these contracts total \$808 million--an increase of \$170 million since the March SAR.

Since the March SAR, a fire has occurred on one of the development aircraft at the contractor's plant. A fuel line fitting caused the fire, and all the aircraft are undergoing inspection.

The milestone for completion of operational evaluation slipped two months because of carrier availability. The carrier evaluations will not be done until late September or early October on the USS Constitution.

The New York Times (August 2, 1982) reported that the Defense Department has selected the F-14 over the F/A-18 as the Navy's primary fighter. The selection of an attack aircraft is still open. Grumman Aerospace Corporation was reported to have offered a firm price of \$19 million for each A-6--a 19 percent reduction from earlier prices. The article further reported that the Navy has threatened to "drop" the F/A-18 unless costs can be kept at \$22.5 million per plane. A reduction or cancellation of F/A-18 purchases could substantially increase the cost of the AV-8B and F-15 aircraft because they share common production facilities.

AV-8B

Although the SAR reports that the production contract was awarded in April 1982, it also indicates that the contract has not been negotiated yet.

The government's estimate for one contract indicates it will overrun its target price by 2 percent or \$11 million.

A reduction or cancellation of the F/A-18 purchases could substantially increase the cost of the AV-8B because both aircraft share common production facilities.

LAMPS MK III

Completion of initial board of inspection and survey trials has slipped two months to July.

The production decision milestone (DSARC III) was completed on June 29. Variant procurement profiles requested by the DSARC members were provided. The SAR indicates that any stretchout of the March 1982 SAR program will result in a breach of the cost thresholds. The Navy is awaiting the Secretary of Defense Decision Memorandum before awarding full-scale production contracts.

The government and contractor estimates for all four development contracts indicate that they will overrun their target prices by 2-25 percent. According to the DoD estimates, the overruns for these contracts total \$22 million.

CAPTOR

After revising the procurement delivery schedule for the third time since the September 1981 SAR, the program is 23 capsules behind schedule. The SAR indicates that the contractor has failed to meet his estimate of deliveries. The SAR does not include a recovery schedule or the cost impact of these delays. Failure to achieve production rates that will enable a return to the delivery schedule could result in increased costs.

As in previous SARs, MK 46 torpedo costs are excluded from the CAPTOR estimate even though the system has no capability without a torpedo. The CBO estimates that including these costs would add about \$840 million to the total program costs.

HARM

The contract price for 1982 Navy and Air Force production has grown 6 percent or \$11 million since the December SAR. In addition, the quantity to be procured has been reduced from 254 to 236 missiles (a 7 percent reduction). In other words the contract provides for fewer missiles at a higher price. The quantity to be procured is 18 missiles less than the combined quantity contained in the supporting documents for the 1983 President's Budget. Specifically, the Procurement

Programs (P-1) and the 1982 Congressional Data Sheets identified 118 missiles for the Navy and 136 for the Air Force--a total of 254 missiles. The March and June SARs indicate that the Air Force quantity for 1982 was reduced from 136 to 119 missiles while the Navy quantity remained at 118 missiles.

The SAR reports that a potential increase in total program cost has been identified but not yet quantified. A joint Navy-Air Force team has been formed to investigate the nature and scope of the problem; results are expected to be reflected in a future SAR. This information was also included in the March 1982 SAR.

The milestone for the completion of operational testing has slipped five times since the June 1981 SAR, this time to September instead of August 1982. The current delay was caused by interfacing problems with the A-7 aircraft (not missile related). Also, the production decision milestone has been delayed one month to October because of the delay in completing operational testing.

HARPOON

The program is 14 missiles behind the procurement delivery schedule as compared with 25 missiles ahead of schedule in the March SAR.

PHOENIX

The total estimate was reduced by \$1.1 billion for the costs and quantity associated with the AIM-54A missiles. The current estimate includes only the acquisition costs of the AIM-54C missiles, but does not include the costs of the modification program to retrofit AIM-54A missiles to the AIM-54C configuration. The net effect of this reduction was to increase the March 1981 SAR total program acquisition unit cost baseline for Nunn Amendment reporting from \$0.9 million to \$1.1 million.

The program is 11 missiles behind the development schedule and 14 missiles behind the procurement schedule as compared with being on schedule in the March SAR. The delays were caused by a series of contractor quality problems experienced during production line start-up.

SIDEWINDER

The total estimate excludes the cost of the Navy modification program (4,380 AIM-9M guidance sections) to upgrade the existing inventory.

SPARROW

The program is 44 missiles behind the planned procurement delivery schedule as compared with 28 missiles behind schedule in the March SAR. The delay in deliveries was caused by early production problems.

The government and contractor estimates for one contract indicate it will overrun its target price. According to the DoD estimates, the overrun is 19 percent or \$7 million higher than the target price.

TOMAHAWK

The SAR indicates that test results have been less than satisfactory.

Six schedule milestones have slipped 1-2 months. Completion of five of the milestones was delayed to permit investigation and correction of an "anomaly" discovered during testing.

The program is behind the planned delivery schedule by five development missiles and six production missiles.

The government's estimates indicate that all three development contracts will overrun their target prices by 1-38 percent. Although the total overrun is only \$44 million, these overruns could increase future procurement costs.

A GAO report entitled Defense Plans to Deploy Some Cruise Missiles Before They Are Ready (February 26, 1982) concluded that the Tomahawk conventional land attack and antiship missile versions may be deployed with limited capabilities unless improvements are made. The report also indicated that the limitations of the missiles, in addition to the possibility of expanding the target base, raise questions about the number of missiles required and the eventual program cost.

The Los Angeles Times (August 14, 1982) reported that since July 1 two of the four missiles test-fired at Point Magu naval base have failed to hit their targets. The article also indicated that of the total 24 test shots, only 16 were considered satisfactory--a 67 percent success rate. The article further reported that the Navy program manager of the joint cruise missile program has been relieved because of problems in the Tomahawk project.

TRIDENT SUBMARINE

The government's estimates for three of the contracts indicate that they will overrun their target prices by a significant percentage. The percent and amount of the overrun are not included in this review because the estimates are classified as "non-security exempt," and

public release of the information could jeopardize future contract negotiations.

The total estimate excludes over \$2 billion in construction costs for the Trident Atlantic Coast Strategic Submarine Base and \$503.5 million in advance procurement funds for shipbuilding beyond the current Five Year Defense Plan.

TRIDENT I MISSILE

The program is 31 missiles behind the production delivery schedule as compared with 35 missiles behind schedule in the March SAR.

The total estimate excludes \$3.9 billion in missile procurement and construction costs for the Trident backfit program for Poseidon submarines. The basis for this exclusion is that these costs do not pertain to the Trident submarine. However, neither program is estimated or managed independently and neither has sufficient annual missile production in all years to stand alone. The costs are estimated on the basis of a total combined Trident-Trident backfit missile production program. In addition, the SAR indicates that the cost breakout is provided for SAR purposes only and should be considered arbitrary. Therefore, CBO believes that the costs of the backfit program should be included in the SAR total cost estimate.

In accordance with DoD instructions, the contractor cost section of the SAR identifies contract information for the six largest contracts for each program. Because the submarines cost more than the missiles, the only contracts reflected in the SAR are submarine contracts. To provide better Congressional oversight, CBO believes that the six major missile contracts should also be included in the SAR contractor cost section.

TACTAS

The total estimate excludes \$238 million for production units that will be procured with the shipbuilding and conversion appropriation. The estimate also excludes \$220 million for retrofit and trainer installations.

SSN-688

The program is behind the planned procurement schedule by one submarine because of unsuccessful at-sea testing of the towed array handling system. Delivery is expected in mid-July.

The government estimates for two of the production contracts indicate they will overrun their target prices by 16-77 percent. A total overrun of

\$1.6 billion is involved. The estimates are at the ceiling prices, which are the legal limits of the government's liability.

The total estimate appears to contain nearly \$2.8 billion more inflation than would be expected from the application of OSD indexes. The estimate appears to contain an implicit inflation rate of 42 percent from 1983 to 1984.

CG-47

The total estimate excludes the following: (a) \$319 million for the combat system engineering development program; (b) \$697 million for AEGIS weapons systems development; and (c) \$144 million of the \$224 million needed to qualify the second shipbuilder.

The target and estimated prices for one contract were increased by \$39 million (11 percent of the previous target) to cover experienced inflation above the amount budgeted, plus contract modifications.

The government and contractor estimates for five production contracts indicate that they will overrun their target prices by 1-4 percent or \$33 million.

The total estimate appears to contain \$203 million more inflation than would be expected from the application of OSD indexes.

The New York Times (August 17, 1982) reported that an investigation by the House Appropriations Committee found that the ship is overweight, sluggish, and in possible danger of capsizing.

FFG-7

The procurement cost has been reduced by \$48.8 million to reflect Congressional action on the reprogramming request for the 1979 program year ships. The SAR indicates that if this adjustment cannot be accommodated within the program balance, the difference will be budgeted as cost growth in subsequent budgets.

The program is one ship ahead of the procurement schedule, but a contract modification has caused delivery of future ships to be slipped about three months.

The total estimate appears to contain \$167 million more inflation than would be expected from the application of OSD indexes.

AIR FORCE PROGRAMS

F-15

The SAR indicates that the development and procurement costs of the F-15 derivative fighter aircraft are under review and will be revised as appropriate in a future SAR.

The program is three aircraft ahead of the procurement delivery schedule as compared with one ahead of schedule in the March SAR.

The planned configuration for the new derivative version includes the existing F100 engine, which has had problems in the past. The current changes do not mention a provision for an expanded engine service warranty that was included in the F-16 December 1981 SAR for the same engine. It seems likely that the F100 engine may ultimately be replaced by a new derivative fighter engine, perhaps increasing program costs. Aviation Week and Space Technology (May 31, 1982) reported that the Air Force is planning to procure both the F100 and F101 engines. The article further reported that the results of competition between the two engines will be used as the basis for determining which manufacturer will receive the larger share of the procurement buy.

A reduction or cancellation of the F/A-18 purchases by the Navy could substantially increase the cost of the F-15 because both aircraft share common production facilities.

F-16

The program is ahead of the procurement delivery schedule by four aircraft as compared with six ahead of schedule in the March SAR.

The total estimate was reduced \$309 million, primarily to correct prior-year escalation computations.

The SAR indicates that eight of the programmed aircraft will be modified and diverted for use by the USAF Thunderbird Squadron. Delivery is expected to be complete by August.

Direction has been received to prepare an evaluation of the F-16 XL, a derivative or advanced version of the present F-16 aircraft. There are indications that the F-16 XL will compete in a flyoff with the F-15E aircraft. There will apparently be a reduction in planned orders for the losing program.

Although the F-16 XL configuration adds weight to the aircraft, the current estimate for the derivative fighter includes the existing F100 engine, which has had problems in the past. An additional \$64.5 million is included for an expanded engine warranty to improve maintainability and availability. The F100 engine may ultimately be replaced by a new derivative fighter engine, perhaps increasing costs. Aviation Week and Space Technology (May 31, 1982) reported that the Air Force is planning to procure both the F100 and F101 engines. The article further reported that the results of competition between the two engines will be used as the basis for determining which manufacturer will receive the larger share of the procurement buy.

The costs of this system include provisions for an advanced self-protection jammer whose effectiveness and cost were questioned in a GAO report entitled Self-Protection Jammers for Tactical Aircraft--More Effective Solutions Needed (April 22, 1982).

EF-111A

Although the SAR reports that the program is on schedule, a comparison of the March and June SARs indicates that the program should be behind schedule by one aircraft.

The government and contractor estimates for one production contract exceed the target price by \$240 million or 331 percent.

IR MAVERICK

As a result of an OSD program review in March 1982, the program was restructured. The 1982 pilot production buy was reduced from 490 to 200 missiles. Production decision milestones have been established at March 1983 and March 1984 for low-rate and full-rate production respectively. The milestone for operational capability has slipped eight months to September 1984.

The SAR reports that two launch failures occurred on July 13 and are still being investigated. The September SAR will report the cause of these failures. In spite of these failures, the milestone for completion of operational testing is still projected as July 1982.

The program is two missiles behind the development delivery schedule as compared with seven missiles behind schedule in the March SAR.

The government and contractor estimates for both development contracts indicate that they will overrun their target prices by 5-13 percent or \$21 million.

Total program costs have increased \$1.2 billion since the March SAR. The total program acquisition unit cost is now 50 percent greater than the

cost reported in the March 1981 SAR. In addition, the 1982 procurement unit cost exceeds the March 1981 SAR baseline by 128 percent or \$0.6 million per missile. This system has, for the second time since the December SAR, breached a threshold established by the Fiscal Year 1982 Defense Authorization Act, Public Law 97-86 (the so-called Nunn Amendment). Authority to obligate funds for this program will automatically terminate if the Secretary of Defense does not certify the system requirement within 60 days of the reported breach. The primary causes of the cost growth are (a) a program stretchout caused by the restructuring, (b) increased inflation above the OSD-approved inflation rates, and (c) increased contractor estimates.

B-1B

The SAR reports that the total estimate of \$20.5 billion in 1981 constant dollars excludes several directly related B-1B expenses. These costs in 1981 dollars are: \$300 million for simulators, \$81.2 million for facility improvements, and \$148.2 million for the component improvement program. The SAR also identified \$41.1 million in current dollars for evaluation of the B-1A defensive avionics and "to-be-determined" construction costs not included in the estimate. If these costs were spread and adjusted for inflation using Administration economic assumptions, total program costs would increase by at least \$700 million.

The current estimate was reduced by \$10 million because the funds for facilities were reprogrammed to another program element. The SAR indicates that these funds will be replaced in the baseline "outyears" in the September SAR.

DSCS III

The government and contractor estimates for the development contract indicate that it will overrun its target price by 17 percent or \$22 million.

NAVSTAR GPS

The current estimate was increased by \$48 million to comply with Congressional direction to fund satellites fully.

The program is still behind schedule by one development satellite. In addition, five schedule milestones have slipped two to eight months since the March SAR.

The government and contractor estimates indicate that two development contracts will overrun their target prices by 10 percent or \$14 million.

Development and procurement costs totaling \$1.2 billion for user equipment are excluded from the total estimate.

ALCM

Total program costs increased by \$184 million because of estimating changes and increased support requirements. The total program acquisition unit cost of \$1.944 million is 14 percent greater than the cost included in the March 1981 SAR. Therefore this program is within 1 percent of breaching the threshold established by the Fiscal Year 1982 Defense Authorization Act, Public Law 97-86 (the so-called Nunn Amendment).

The program is 2 missiles ahead of the planned procurement schedule as compared with 19 missiles behind schedule in the March SAR.

The government and contractor estimates at completion indicate that three of the procurement contracts will overrun their target prices by 5-9 percent. The total overrun involved is \$37 million.

The Los Angeles Times (August 14, 1982) reported that the joint cruise missile program manager has been relieved because of problems with the Navy Tomahawk cruise missile.

A GAO report entitled Air Launched Cruise Missile Shows Promise But Problems Could Result in Operational Limitations (February 26, 1982) concluded that the ALCM could be deployed in significant numbers with limitations that may require costly modifications.

GLCM

Total program costs increased by \$378 million, primarily because of higher than expected contractor proposals. The total program acquisition unit cost of \$6.714 million per missile is 20 percent greater than the March 1981 SAR baseline estimate. Therefore this program has breached the threshold established by the Fiscal Year 1982 Defense Authorization Act, Public Law 97-86 (the so-called Nunn Amendment).

Delivery of development and procurement hardware continues to fall farther behind schedule. The program is now behind schedule by two development missiles, four production missiles, one development launch control center, and one production launcher. The missile development and procurement schedules have been revised because of component shortages and quality control problems.

The government and contractor estimates for all of the four contracts included in the SAR indicate that they will overrun their target prices by 8-53 percent. The total overrun involved is \$74 million.

The Los Angeles Times (August 14, 1982) reported that the joint cruise missile program manager has been relieved because of problems with the Navy Tomahawk cruise missile.

HARM

The March SAR reported that a potential cost growth had been identified but not yet quantified. A joint Navy-Air Force cost assessment team was formed to investigate the nature and scope of the growth, with the results of the review to be included in a future SAR. Although the SAR for the Navy Harm still includes this information, the SAR for the Air Force version does not. In fact, the current estimate was decreased by \$2 million since the March SAR.

The SAR indicates that the 1984 President's budget request will contain a reduction in the total number of missiles required.

The total program acquisition unit cost of \$0.293 million per missile exceeds the March 1981 baseline estimate by 22 percent. Therefore this program exceeds the threshold established by the Fiscal Year 1982 Defense Authorization Act, Public Law 97-86 (the so-called Nunn Amendment).

The contract price for 1982 Navy and Air Force production has grown 6 percent or \$11 million since the December SAR. In addition, the quantity to be procured has been reduced from 254 to 236 missiles (a 7 percent reduction). In other words the contract provides for fewer missiles at a higher price. The quantity to be procured is 18 missiles less than the combined quantity contained in the supporting documents for the 1983 President's Budget. Specifically, the Procurement Programs (P-1) and the 1982 Congressional Data Sheets identified 118 missiles for the Navy and 136 for the Air Force--a total of 254 missiles. The March and June SARs indicate that the Air Force quantity for 1982 was reduced from 136 to 119 missiles while the Navy quantity remained at 118 missiles.

SIDEWINDER

The second-and third-quarter delivery schedules have been revised (delayed) to reflect equivalent "all-up-around" acceptances on the pacing component rather than guidance control system acceptances. The delivery schedule for the Navy Sidewinder did not include this revision.

SPARROW

The SAR reports that the program is short \$23 million for 155 missiles in 1981 and \$72.4 million for 535 missiles in 1982. Without additional

funding the program will procure only 1,050 missiles in 1981 and 1,025 missiles in 1982.

The program is 135 missiles behind the procurement delivery schedule as compared with 17 missiles behind schedule in the March SAR.