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Briefing Report to Congressional Requesters

September 1991

1992 AIR FORCE BUDGET

Potential Reductions in Satellite Programs

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United States
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National Security and
International Affairs Division

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September 23, 1991

The Honorable Daniel K. Inouye
Chairman, Subcommittee on Defense
Committee on Appropriations
United States Senate

The Honorable John P. Murtha
Chairman, Subcommittee on Defense
Committee on Appropriations
House of Representatives

As you requested, we examined the Department of the Air Force fiscal year 1992 budget request and prior years' appropriations for selected command, control, and communications satellite programs. Our objectives were to identify potential reductions to the fiscal year 1992 budget request and potential rescissions to prior year appropriations. We briefed your staffs in May and July 1991 on the results of our work.

Our review showed that schedule slippages, technical risks, and program changes have affected the programs' funding requirements for fiscal year 1992. As shown in table 1, we identified $297.9 million in potential reductions and rescissions for congressional consideration. (See appendixes I and II for detailed information on potential reductions and rescissions.)

Table 1: Potential Reductions and Rescissions in Fiscal Years 1990, 1991, and 1992 Command, Control, and Communications Satellite Programs

Dollars in millions

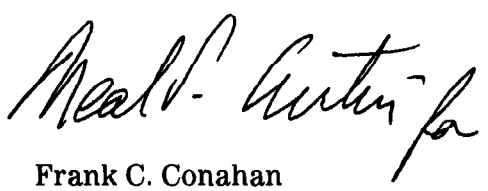
	Potential rescissions		Potential reductions
	Fiscal year		
Account	**1990**	**1991**	**1992**
Other procurement	$ •	$ •	$27.5
Missile procurement	2.4	4.4	97.6
Research, development, test and evaluation	•	84.0	82.0
Total	**$2.4**	**$88.4**	**$207.1**

We focused on program cost, schedule, and performance issues and examined expenditure documents to determine if requests were adequately justified and whether prior years' unobligated funds should be retained. Appendix III provides information on our scope and methodology.

As requested by your offices, we did not obtain written agency comments on a draft of this report. However, we discussed the information in this report with program officials and incorporated their comments where appropriate.

As agreed with your offices, we plan no further distribution of this report until the Appropriations Committee of Conference completes work on the fiscal year 1992 defense budget. At that time, we will send copies of this report to the Senate and House Committees on Armed Services as well as other interested congressional committees; the Secretaries of Defense and Air Force; and the Director, Office of Management and Budget.

This report was prepared under the direction of Louis J. Rodrigues, Director, Command, Control, Communications, and Intelligence Issues, who may be reached on (202) 275-4841 if you or your staffs have any questions. Other major contributors to this report are listed in appendix IV.



Frank C. Conahan
Assistant Comptroller General

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Abbreviations

AWS	Advanced Warning System
DMSP	Defense Meteorological Satellite Program
DSP	Defense Support Program
FEWS	Follow-on Early Warning System
GCO	Ground Computer Change Out Program
GPS	Global Positioning System
NDS	Nuclear Detonation Detection System

Summary of Potential Reductions and Rescissions in Air Force Command, Control, and Communications Satellite Programs

Department of the Air Force

Dollars in millions

Budget		Fiscal year			
Line	**Item**	**1990**	**1991**	**1992**	**Basis for reduction or withholding**
Other procurement, Air Force					
112	Defense Meteorological Satellite Program—Mark IVB Ground Terminal	$ •	$ •	$9.5	Production can be postponed due to 1-year delay in operational testing (p. 7).
103	Defense Support Program—Ground Computer Change Out Program	•	•	18.0	Operational testing is needed before additional computer hardware is purchased (pp. 8-9).
Missile procurement, Air Force					
34	Defense Meteorological Satellite Program—Satellites 19 and 20	•	•	88.8	Procurement of satellites 19 and 20 can be delayed without affecting operational capability (pp. 9-10).
36	Defense Support Program—Satellite 15	2.4	•	•	Satellite 15 launch contingency funds are no longer required (p. 11).
30 & 44	Navstar Global Positioning System and Nuclear Detonation Detection System	•	−4.4	8.8	Funds for cancellation penalties are no longer needed (pp. 12-13).
Research, development, test, and evaluation, Air Force					
70	Defense Support Program and Follow-on Early Warning System	•	84.0	82.0	Requirements need defining and cost-effectiveness needs assessing (pp. 13-14).
	Total	**$2.4**	**$88.4**	**$207.1**	**$297.9**

Potential Reductions and Rescissions in Air Force Command, Control, and Communications Satellite Programs

Program

Defense Meteorological Satellite Program (DMSP) Mark IVB Ground Terminal

Appropriation

Other Procurement, Air Force

Dollars in millions

	Fiscal year		
Budget line	**1990**	**1991**	**1992**
112	$.810	$18.857	$16.806
Potential reduction	•	•	9.500

Background

DMSP satellites collect and disseminate worldwide weather information to military commanders via fixed and transportable ground terminals. The Air Force is currently developing the Mark IVB ground terminal to upgrade existing fixed and transportable ground terminal sites.

Results of Analysis

The Air Force's fiscal year 1992 DMSP budget request could be reduced by $9.5 million because of a delay in the production decision for the fixed Marked IVB ground terminals until operational testing is completed. Operational testing has been delayed by 1 year.

DMSP has experienced software problems associated with the development of the Mark IVB ground terminals. The program office planned to begin production of the Mark IVB system in February 1991 after completion of operational testing. However, operational testing has been delayed until October 1991, which in turn delayed the production decision until January 1992. Thus, the Air Force has not obligated fiscal year 1991 procurement funds available for Mark IVB production.

Program officials stated that the program should not be affected if fiscal year 1992 funds requested for production of the fixed Mark IVB ground terminal are reduced and are later provided in fiscal year 1994. However, they said that the remaining $7.3 million requested in fiscal year 1992 is needed for site activation as well as to initiate procurement of the transportable ground terminal.

Program

Defense Support Program (DSP)/Ground Computer Change Out Program (GCO)

Appropriation

Other Procurement, Air Force

Dollars in millions

Budget line	Fiscal year 1990	1991	1992
103	$65.028	$62.756	$52.066
Potential reduction	•	•	18.000

Background

DSP is a strategic surveillance and early warning satellite system with the primary mission of detecting ballistic missile launches. It is supported by a network of fixed and mobile ground stations that process and disseminate information to military commanders worldwide.

The Air Force initiated the System I software and GCO programs to upgrade DSP ground stations. Initially, the GCO computer hardware was to be purchased after the System I software was operationally tested and demonstrated satisfactory performance on existing DSP computer hardware. However, the System I program experienced developmental problems that increased the lines of computer code so it could not be tested on the DSP computer hardware. Therefore, operational testing will be performed using the GCO computer hardware.

Results of Analysis

The Air Force's fiscal year 1992 DSP budget request can be reduced by $18.0 million by limiting the procurement of the GCO hardware to that needed to perform System I software operational testing.

According to a program official, the Air Force plans to award a contract in September 1991 to purchase the GCO hardware needed for operational testing. However, the Air Force also plans to procure additional GCO hardware in fiscal year 1992 before operational testing is completed and before it has adequate assurance that System I will perform as designed. Operational testing of System I is scheduled to start in October 1992 and be completed in about March 1993.

A program official stated the risks associated with the current development and acquisition schedule are moderate. In addition, software developmental risks have been addressed to minimize the impact on GCO hardware.

Given previous System I software development problems, we believe the purchase of GCO hardware beyond that needed to operationally test System I software could result in costly program modifications to solve problems detected during operational testing.

In response to our request, the program office could not provide a specific estimate of the cost of delaying the procurement of GCO hardware. However, we were told any reductions in fiscal year 1992 funding for the GCO program would be needed in fiscal year 1994. In addition, we were told that additional funding may be needed in future fiscal years to fund System I because of program stretch-out.

Program

Defense Meteorological Satellite Program—Satellites 19 and 20

Appropriation

Missile Procurement, Air Force

Dollars in millions

	Fiscal year		
Budget line	**1990**	**1991**	**1992**
34	$78.800	$84.068	$108.052
Potential reduction	•	•	88.765

Background

DMSP collects worldwide weather information (visible and infrared cloud imagery, oceanographic, and solar-geophysical data) and disseminates it to military users worldwide. The DMSP system consists of two on-orbit operational satellites, two spare satellites on the ground, and a supporting network of satellite receiving and ground-processing stations.

In 1989, the Air Force entered into a multiyear contract to procure DMSP satellites 16 through 20. To date, the Air Force has exercised options to purchase satellites 16 through 18 and budgeted $91.7 million of the $108.1 million requested in fiscal year 1992 to purchase the remaining

two satellites. The Air Force is currently negotiating cost and schedule changes to incorporate mission capability upgrades.

Results of Analysis

The Air Force's fiscal year 1992 DMSP budget request of $108.1 million can be reduced by $88.765 million. This reduction can be achieved by delaying procurement of satellites 19 and 20 until fiscal year 1993. Such a delay would not cause a break in production, affect operational capability, nor delay planned delivery dates of satellites 19 and 20.

The Air Force is currently negotiating cost and schedule changes to incorporate satellite mission capability upgrades. These negotiations will result in delaying delivery of satellites 16 and 17 by up to 1 year. Given that satellite delivery dates will slip, delaying procurement of the last two satellites is reasonable.

If procurement of satellites 19 and 20 were delayed, fabrication and assembly of these two satellites would start 1 year later than currently planned. This delay would reduce storage time of the components of satellites 19 and 20 to about 6 and 15 months, respectively, and would not affect planned satellite delivery dates. Since the contractor cannot integrate and test all the assembled satellites at once, current plans would have the components of these two satellites in storage 18 and 27 months, respectively, before integration and testing begins.

Program officials disagree that delaying satellite procurement is in the best interest of the government. The program office estimates delaying the procurement of both satellites 19 and 20 would increase costs in fiscal year 1993 by about $4.6 million to $7.4 million, including inflation. A program official estimated the Air Force would also incur a penalty in fiscal year 1992 of $2.935 million for delaying satellite procurement.

Program

Defense Support Program—Satellite 15

Appropriation

Missile Procurement, Air Force

Dollars in millions

	Fiscal year		
Budget line	**1990**	**1991**	**1992**
36	$332.300	$326.246	$65.752
Potential reduction	2.370	•	•

Background

DSP is a strategic surveillance and early warning satellite system that provides early warning in the event of a ballistic missile attack. The first DSP satellite was launched in the early 1970s, and the most recent, satellite 15, was launched in late 1990. At least nine more satellite launches are expected throughout the 1990s.

Results of Analysis

The DSP program office has $2.37 million remaining to cover contingencies related to the launch of satellite 15. Because satellite 15 was launched in 1990, a DSP program official stated that these funds are no longer required. Thus, $2.37 million in fiscal year 1990 DSP funds can be rescinded, or the Air Force's fiscal year 1992 DSP budget request could be reduced by that amount.

Programs

Global Positioning System (GPS) and Nuclear Detonation Detection System (NDS)

Appropriation

Missile Procurement, Air Force

Dollars in millions

Budget line	Fiscal year 1990	1991	1992
30	$42.200	$75.200	$150 100
44	•	9.800	39.800
Potential reduction			
30	•	•	8.800
44	•	4.400	•

Background

The Navstar GPS is a space-based radio navigation system designed to provide precise three dimensional position, velocity, and time data for land-based, seaborne, and airborne users. GPS consists of (1) a 24-satellite constellation, including three on-orbit operational spares, (2) a ground control segment, and (3) a user equipment segment.

NDS is deployed on the GPS satellites. Its mission is to detect, locate, and report nuclear detonations on a global, near real-time basis.

Results of Analysis

The Air Force's fiscal year 1992 GPS budget request can be reduced by $8.8 million because it appears unlikely that GPS will be canceled and there is no legal requirement that the Air Force fund potential cancellation penalties in multiyear contracts. Also, $4.4 million in fiscal year 1991 NDS funds can be rescinded.

In fiscal year 1991, the program office exercised a multiyear production option for 20 GPS satellites. As part of the contract agreement, the Air Force agreed to reimburse the contractor up to $53.3 million in penalties if the contract was canceled in fiscal year 1991. The Air Force has reprogrammed $48.9 million, $45.8 from the GPS program and $3.1 million from the NDS program. This leaves $4.4 million to cover possible penalties in the NDS program budget.

Department of Defense reprogramming documents indicated that these funds were reprogrammed because they were no longer needed to cover cancellation penalties. Since there is no more need to fund for such penalties, $4.4 million in fiscal year 1991 NDS funds could be rescinded. In addition, the Air Force's fiscal year 1992 budget request could also be reduced by $8.8 million, the amount requested to cover the cancellation penalty, since there is no legal requirement that the Air Force must fund potential cancellation penalties in multiyear contracts and it appears unlikely that GPS will be canceled in light of its success in Operation Desert Storm.

Program

Defense Support Program/Follow-On Early Warning System (FEWS)

Appropriation

Research, Development, Test, and Evaluation, Air Force

Dollars in millions

	Fiscal year		
Budget line	**1990**	**1991**	**1992**
70	$89.737	$273.677[a]	$135.400[b]
Potential reduction	•	84.000	82.000

[a]Includes $210 million transferred from the Advanced Warning System (AWS) program.

[b]Includes $19.4 million in the original budget and $116 million in the amended budget ($82 million for FEWS and $34 million for ground station software development).

Background

DSP satellites provide early warning of a ballistic missile attack. AWS was to replace the current DSP system and provide more accurate and timely warning. AWS was terminated in November 1990, and according to Air Force officials, $210 million in fiscal year 1991 funding that had been appropriated for AWS was transferred to upgrade DSP. However, in April 1991, the Air Force proposed developing FEWS rather than upgrading DSP.

Because FEWS was proposed outside the Department of Defense's regular budget cycle, the Air Force did not originally request funds in the President's fiscal year 1992 budget. However, in the President's fiscal year 1992 amended budget, the Air Force requested $82 million in research and development funding for FEWS. In addition, the Air Force plans to use $84 million of the $210 million appropriated for AWS in fiscal year

1991. This brings the total that the Air Force plans to spend for FEWS in fiscal year 1992 to $166 million.

Results of Analysis

We believe the $82 million requested for FEWS in the Air Force's fiscal year 1992 amended budget could be denied and the $84 million planned for FEWS from fiscal year 1991 appropriations could be rescinded because key elements of the program are still undecided.

FEWS is not expected to initially satisfy operational requirements for a space-based tactical warning/attack assessment sensor system because the Air Force plans to employ a design-to-budget strategy. Although the Air Force plans to develop FEWS later into a fully capable system, the system's initial capabilities will be based on affordability rather than requirements. This approach provides no assurance of what the system's initial capabilities will be or how much a fully developed system will cost. Furthermore, the Department of Defense's Joint Requirements Oversight Council, which is scheduled to meet in September 1991, must still approve FEWS' requirements.

The Air Force also has not completed an evaluation comparing the cost-effectiveness of FEWS to other alternatives, including an improved DSP system. A program official stated the Defense Acquisition Board, which will meet in October 1991, will use the results of this evaluation in deciding which alternative to select. Given these program uncertainties, we believe the Air Forces' funding requests for FEWS are premature.

Scope and Methodology

We selected command, control, and communications satellite programs from three accounts for detailed review: Other Procurement, Research, Development, Test, and Evaluation, and Missile Procurement. We interviewed responsible officials and obtained information from the Office of the Secretary of Defense, Arlington, Virginia, and at the Space Systems Division, Los Angeles Air Force Base, California. In addition, we incorporated potential reductions and rescissions identified under ongoing assignments.

We focused our initial efforts on identifying specific programs that might warrant further review for potential reductions or rescissions. We then placed emphasis on identifying potential reductions and rescissions based on changes in program cost, schedule, and performance.

We performed our review from January 1991 through August 1991 in accordance with generally accepted government auditing standards.

Major Contributors to This Report

National Security and International Affairs Division, Washington, D.C.	Howard R. Manning, Assistant Director James A. Elgas, Evaluator-in-Charge
Los Angeles Regional Office	Richard Herrera, Regional Assignment Manager Dale M. Yuge, Senior Evaluator Pierre F. Crosetto, Senior Evaluator Carlos M. Garcia, Evaluator

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