COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-196765

AUGUST 27, 1980

The Honorable Jack Brooks
Chairman, Committee on Government Operations
House of Representatives

HSE01500

Dear Mr. Chairman:

Subject: Evaluation of EF-111A Extended Development and Full-Scale Production Decision (PSAD-80-71)

In your letter of January 29, 1979, you requested that we continue to monitor the EF-111A Tactical Jamming System's extended development program and keep your committee advised of its progress prior to any production decision. Pursuant to arrangements made with your office, we monitored the progress of the EF-111A phased development test program and briefed your office on March 6, April 5, July 3, and October 5, 1979, and February 21, 1980. This is our final report summarizing the results of this work as presented in those briefings.

As you know, the concerns raised by your committee and us during the latter part of calendar year 1978 contributed to the Department of Defense's February 1979 decision to initiate a 12-month effort to define and demonstrate corrections for numerous technical/design deficiencies disclosed during initial operational test and evaluation. Because of the stated urgent need for the EF-111A, this effort was keyed to the limited production of six systems in a manner that would reduce the subsequent risk of expensive redesign and retrofit. The effort was to be successfully completed before the full-scale production decision.

Our monitoring of the program showed that the Air Force had defined and demonstrated corrections for most of the technical and design deficiencies detrimental to the EF-111A's operability, 1/ reliability, and maintainability. As of March

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1/Operability is operational suitability or the ability to perform missions. As used in this report, operability refers to acceptability of electronic warfare officer's workload, electromagnetic interference, and power interruptions.

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1980, only 4 of 220 deficiencies identified during initial and follow-on tests remained open. However, solutions to some significant performance degradations and answers to questions concerning reliability and maintainability of two major subsystems are continuing to be sought.

Based on the results of the 12-month effort to improve operability and supportability, the Department of Defense approved full-scale production of the EF-111As in March 1980. The Air Force plans to procure 33 EF-111As in fiscal years 1981, 1982, and 1983 and to concurrently pursue the second phase of follow-on testing to correct the remaining technical problems. The current estimated program cost is $1.3 billion, which includes about $450 million already spent.

You also requested that we advise the committee of our opinions as to the military need for the EF-111A, given its demonstrated performance capabilities. As stated in our previous reports, we do not believe the performance capabilities demonstrated during the initial operational tests confirmed the system's combat effectiveness or military worth. For this reason, we recommended to the Secretary of Defense (PSAD-79-74, Apr. 25, 1979) that additional system effectiveness testing and analysis be undertaken during the 12-month effort described above.

The Department of Defense responded by stating that some additional operational effectiveness data will be available through flight testing and simulation, but that no extensive dedicated effectiveness testing was warranted for two reasons:

--The initial operational tests and subsequent scenario analysis updated with flight and laboratory test results confirm the EF-111A's operational effectiveness and military worth and support an immediate procurement decision.

--Limited test resources (one EF-111A prototype aircraft) and an inadequate test environment (lack of updated threat radar simulators) would not justify the dedicated effectiveness testing we believed was needed during the 12-month period. The Department of Defense stated that an additional EF-111A would not be available before March 1981 and that a significant update to the radar simulator environment would not be accomplished until mid-1980.

Our previous reviews 1/ on the EF-111A's initial operational tests showed that the inadequate quantity and quality of the threat radar simulators, insufficient instrumentation, and other inherent limitations at the Western Test Range prevented a quantitative assessment of system performance and effectiveness. Further, our present review of the scenario analysis, updated with flight and laboratory test results, showed that the analysis (1) only evaluated the EF-111A's contribution flying escort missions at medium altitudes, (2) used assumptions on deployment and operation that differed materially from the planned concepts of U.S. Air Force Europe, (3) did not consider some factors which would contribute to the loss of aircraft, (4) did not compare EF-111A effectiveness to that of alternative defense suppression systems, and (5) understated EF-111A costs. For these reasons, we believe the analysis falls short in demonstrating the system's military worth or cost effectiveness that would support spending $1.3 billion for 42 EF-111As.

In particular, the assumptions on deployment and operation which differ from planned U.S. Air Force Europe concepts should be reconciled to assure a more realistic basis for scenario analysis. Our evaluation shows that, when the assumptions used are varied, the EF-111A cost effectiveness can become a minus rather than a plus. Consequently, a determination of the EF-111A's cost effectiveness and military worth requires a scenario analysis that uses realistically planned tactics and demonstrated capabilities.

At this late date, however, a decision to defer further production until operational effectiveness and military worth can be better demonstrated may be too costly. For example, the Air Force estimated in 1976 that a program stretchout from April 1981 to July 1982 would cost an additional $100 million. Since June 1976, the estimated program costs of $475 million have increased to $1.3 billion, with production running through 1983. Further delays or stretchouts can be expected to continue this cost growth trend. To terminate the program at this time may be worse than the deferral option since system effectiveness is not yet adequately known. It would require (1) walking away from a $450 million investment

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1/PSAD-79-5, Nov. 6, 1978, "Assessment of Joint DT&E/IOT&E Results of EF-111A Tactical Jamming System" (Secret) and PSAD-79-74, Apr. 25, 1979, "Initial Assessment of the EF-111A Tactical Jamming System Continuing Development Program" (Secret).

and (2) ignoring the expressed military judgment (as opposed to an objective demonstration or quantitative evaluation) that the system has military worth and will be effective once it gets into the field and the Air Force has had an opportunity to learn how to use it for maximum benefits.

RECOMMENDATIONS

Consequently, considering the alternatives available at this time, continuing the production of EF-111As in 1981 may be the best choice. However, before requesting funds for fiscal years 1982 and 1983 EF-111A procurements, we recommend that the Secretary of Defense

--reconcile differing concepts of deployment to assure a realistic basis for additional dedicated effectiveness testing and scenario analysis and

--plan dedicated effectiveness tests and evaluations to be undertaken in 1981 when the improved threat radar simulators are in place and another EF-111A becomes available.

We also recommend that the Secretary advise the authorization and appropriation committees of the results of the tests and evaluations.

We further recommend that the Secretary of Defense develop proposals for congressional consideration to fund the development and maintenance of test facilities and environment suitable for testing electronic warfare systems. This has been an overall deficiency contributing to the uncertainties of the EF-111A, the F-4G Wild Weasel, and the EA-6B programs. Without extensive improvements requiring additional funding over a period of years, these limitations will cause similar uncertainties for future electronic warfare programs.

Finally, since the Department of Defense claims that a larger force of about 84 EF-111As is needed to meet the worldwide threat, there may be requests for additional EF-111As beyond the present program of 42 aircraft. To support such requests, we recommend that the Secretary of Defense conduct a comprehensive defense suppression analysis, considering all defense suppression alternatives and showing their relative cost effectiveness and affordability.

As requested by your office, we did not obtain comments from the Department of Defense on this report.

As arranged with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 20 days from the date of the report. At that time we will send copies to interested parties and make copies available to others upon request.

Sincerely yours,

Comptroller General
of the United States