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Dear Mr. Aspin:

Pursuant to your request of September 1, 1972, we have analyzed the current cost estimates for the UTTAS helicopter program as shown in the June 30, 1972, Selected Acquisition Report (SAR).

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We are reviewing the UTTAS helicopter for the Congress as part of our annual review of selected major system acquisitions. We will cover the cost and other significant aspects of this program in our UTTAS staff study which we expect to issue early this year.

Your questions and our findings are presented below.

"1. Why has the cost estimate as reported in the June 30 SAR increased by more than \$300 million compared to the information reported in your March staff study?"

The current estimate for UTTAS program acquisition cost as shown in the June 30, 1972, SAR, was \$2.344 billion. This represents a \$312.2 million increase over the original planning estimate of \$2.032 billion, which appeared in the Development Concept Paper (DCP) and was reported in our March 1972 staff study.

The net increase of \$312.2 million resulted from the following changes made to the original planning estimate to arrive at the revised planning estimate and the current estimate which appear in the SAR of June 30, 1972.

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	<u>Amount in millions</u>
Original planning estimate (fiscal year 1971 dollars) based on the DCP, reported in June 30, 1972, SAR	\$2,032.3
Deletion of estimated costs for component improvement, project administration, central supply activity, initial training, and first destination transportation which were erroneously included in the original planning estimate	-90.6
Addition of an allowance for inflation that the Army would have included in the original planning estimate if it had been required to include an allowance for inflation when the DCP was approved	<u>+365.6</u>
Revised planning estimate reported in June 30, 1972, SAR	\$2,307.3
Quantity change:	
Reduced number of engines from 76 to 74 to support development	-.7
Engineering changes:	
Deletion of certain items, principally engine instrument test sets	-25.1
Support changes:	
Refined estimate for maturity test costs and for overhauls required during competitive phase	-7.1
Estimating changes:	
Revised estimating techniques and methodologies, including consideration of negotiated engine contract prices, revision of the advanced production engineering estimate, and revision of the unit cost methodology	-82.3
Economic changes:	
Amount included to update DCP estimate from 1971 dollars to 1972 dollars	+87.2
Inflation resulting from changes to DOD inflation indices	<u>+65.2</u>
Current estimate reported in June 30, 1972, SAR	<u>\$2,344.5</u>

All the increases to the DCP estimate were attributable to inflation allowances. These total \$518.0 million. In our March 1972 staff study, we reported that the DCP estimate did

not include an allowance for inflation. The June 30, 1972, SAR compensates for this omission by increasing that estimate to include \$365.6 million for inflation which could have been properly included in the estimate reported in our March 1972 staff study.

"2. Has the Army adequately documented its projected inflation costs and its lower revised cost estimates?"

In our opinion, adequate documentation was available to support the Army's projected inflation costs and the other revisions to its cost estimate. The allowance for future price escalation was computed using the applicable Office of the Secretary of Defense inflation indices.

"3. Why was the competitive prototype contract award for Boeing's Vertol Division approximately \$30 million more than the award given to Sikorsky?"

1 Two airframe contractors, the United Aircraft Corporation ^{D. 2254}
2 (Sikorsky Aircraft Division) and the Boeing Company (Vertol ^{C 2438}
Division), were awarded contracts on August 30, 1972, for competitively developing UTTAS prototypes. After evaluation,
3 which includes a competitive fly-off, the Army will select one ²⁰
of these contractors to produce the UTTAS aircraft.

Cost-plus-incentive-fee contracts were awarded to Boeing/Vertol with a target price of \$91.3 million and to Sikorsky with a target price of \$61.9 million. These contracts are for designing, developing, fabricating, and testing a mission-effective UTTAS. Each contractor is to build three flyable prototypes, one ground test vehicle, and one static test article. Each contract also contains an option for the Army to purchase a maximum of six flyable prototypes if congressional approval is received.

Records we examined at the Army Aviation Systems Command indicated that Sikorsky had significantly greater experience with the type of design which marks the UTTAS. This experience, in addition to the lesser complexity of Sikorsky's contemplated design, may account for differences in the scope of the work required of both contractors and for Sikorsky's ability to propose a price considerably lower than Boeing/Vertol's.

We classified the differences in scope into three general areas--prototype production, development, and testing. We have not attempted to relate specific differences in cost to differences in the scope of the work.

We based our further response to this question on information obtained from records we examined at the Army Aviation Systems Command, as well as on our discussions with Command officials.

Prototype production. Sikorsky's UTTAS design was less complex than Boeing/Vertol's. This simpler design should result in less man-hours per pound to manufacture the prototypes and could also account for some differences in tooling and recurring manufacturing costs.

Development. Sikorsky had previously developed and built helicopters of similar size, weight, and rotor configuration which incorporated a number of the same features included in its UTTAS design. These helicopters were more related to the UTTAS design than any previously built by Boeing/Vertol. Boeing/Vertol had proposed features on which they had had little or no experience. Sikorsky had undertaken more independent research and development projects directly relating to its UTTAS design than had Boeing/Vertol. The Army concluded that Sikorsky's history and experience in these areas supported a lower development cost than Boeing/Vertol's.

Testing. Experience accumulated in the areas described above negated the need for many tests by Sikorsky. Also Sikorsky had capitalized major pieces of test equipment which would not be directly chargeable to the UTTAS program, while Boeing/Vertol would charge similar equipment directly. Sikorsky already has test equipment and fixtures which require only minor modifications for the UTTAS program, while Boeing/Vertol requires new test equipment and fixtures.

In addition to these differences attributed to the scope of work, the Army's cost estimate for the UTTAS development effort was higher than Sikorsky's proposed cost estimate (which became the target cost in the Sikorsky contract).

During contract negotiations, Sikorsky was given the opportunity to adjust its bid price and, in fact, increased it. The final contract figures were those proposed by Sikorsky. The Sikorsky estimate assumed favorable utilization of previous technology and experience. The Army believes that while

Sikorsky's estimate could be achieved under very favorable conditions, a higher development cost is more likely.

"4. What technical problems and risks are involved in the program and do Army estimates properly account for such problems and risks?"

Overall, technical risks in developing the UTTAS helicopter are considered moderate. Army officials state that all the technology exists for this development. The most challenging area and the highest risk item in the program is the requirement to meet reliability and maintainability goals. Project Manager Office officials have stated that above-normal effort is required to meet these goals.

The estimates in the June 30, 1972, SAR were prepared using historical experience with similar aircraft, engineering estimates, and expert opinion. These estimates provide for a normal level of effort for reliability and maintainability. The estimates also contain an additional \$55.1 million over and above that included for a normal level of effort to provide for additional contractor effort to meet the reliability and maintainability goals of the UTTAS program.

In summation, we found no evidence indicating that increases to estimates are in fact a cost cushion for the program or that underlying or undisclosed technical problems are causing or contributing to these increases.

As you may know, it is a Department of Defense practice to have proposed responses to questions directed to it by individual Members of the Congress reviewed by the service secretary concerned when the information to be furnished is prejudicial to competitive procurement. Army officials have informed us that the information regarding the differences in the two contract awards, presented in our response to your third question, falls into this category.

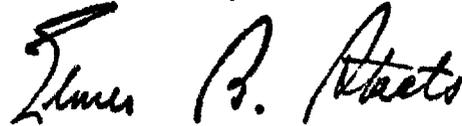
This Office does not follow a similar procedure, and so we have not discussed the matter with the Secretary of the Army. However, in view of the sensitive treatment the Department of Defense gives this type of information, it may be desirable for you to first consult with the service secretary should you elect to make the information public.

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In accordance with discussions with your office, we have not obtained formal comments from the Army on any of the information presented in this letter.

If we can be of any further assistance, please let us know.

Sincerely yours,

A handwritten signature in black ink, appearing to read "James P. Abate". The signature is written in a cursive style with a large initial "J".

Comptroller General
of the United States

CLAR
The Honorable Les Aspin
House of Representatives