

CENT. INTELLIGENCE AGENCY

WASHINGTON, D.C. 20505

BAF



BYE-107850-74

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19 SEP 1974

MEMORANDUM FOR: Comptroller, National Reconnaissance Office

SUBJECT : HEXAGON [] Initial System Acquisition Costs

REFERENCE : WHIG 1148 Dated 29 August 1974; Same Subject

In response to your request cited in reference submitted below is an historical presentation of initial acquisition costs by program. We have arranged the data in dollar categories and followed each program submission with a short narrative explanation of each category.

A. HEXAGON initial Development and Acquisition Costs
(In Thousands)

1. Original Definitized Acquisition Contract \$188,125.
 - Price
 - *Facilities, Field Support and Flight Analysis 29,655.
 - *Initial Contract Set-Asides 5,000.
 - *Scope Changes Increasing Capability 10,000.
 - *Scope Changes Achieving Original Objective 10,000.
 - *Additional Scope and Performance Fee Earned 7,535.
2. Total - Original Program Price and Changes 230,315.
3. Program Overrun 66,000.
 - *Prime Contractor 19,500.
 - *Subcontracts 46,500.
4. Final Program Contract Price 316,315.

1. Original Definitized Acquisition Contract Price

This cost covered the prime contractors responsibility to deliver six (6) Sensor Subsystems through design, fabrication, test and installation in the HEXAGON Vehicle Midsection Assembly. Prior to definitization, the

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§ 5B(1), (2), (3) or (4) (circle one or more)
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HEXAGON []

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Government negotiated a Letter Contract which covered a period of time when significant changes to the system were directed including an increase from two to four re-entry vehicles and a switch to a selectable placeable sector scan which markedly complicated the sequencer design.

*Facilities, Field Support and Flight Analysis

The facilities cost encompassed such items as: Four (4) Vacuum and Two (2) Optical Chambers, a Vibration and Acoustic Facility, Thermal Monitoring and Test Data Management Systems, Chamber Support Structure, Film Processing Facility, Cranes, Hoists, etc.

Field Support consisted of a separate effort required in the vehicle integration process that took place at LMSC, the Launch Vehicle Integration contractor.

Flight Analysis covered a small effort evaluating the performance of the vehicles on-orbit primarily in the area of image quality and system anomalies.

*Initial Contract Set-Asides

At the time of negotiation the costs for Vehicle Integration were impossible to estimate and had to be set aside for future incorporation into the contract.

*Scope Changes Increasing Capability

The following key changes were made to increase system flexibility/reliability.

- a. System Pressurization - Improved capability to rewind and maintain film flatness in the focal plane.
- b. Active Thermal Control - Provided capability to monitor and control temperature in vehicle forward section.
- c. Redundant Command and Control - Made command and control system completely redundant for increased reliability.
- d. On-Orbit Adjust - Added capability for on-orbit adjustment of film synchronization.

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HEXAGON [REDACTED]

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- e. Smear Slits - In concert with D above a capability was added that allowed determination of system induced smear, directly from the imagery.
- f. In-Flight Changeable Filters - Increased flexibility of the system to utilize a variety of film types.

• Scope Changes Achieving Original Objective

The major scope change which fell within the category of "achieving the original contract objective" but nevertheless was a legitimate "increase in scope" to the Contractor was the delay in selecting the Launch Vehicle and Re-Entry Vehicle Contractor. Much of the design work which had already been accomplished by Perkin-Elmer had to be modified and in several instances completely redone. It should be noted that there were over 500 interface document changes on the program and the untimeliness of many of these changes contributed to increased program cost.

• Additional Scope and Performance Fee Earned

While the Contractor was penalized for overrunning the contract, his outstanding technical performance resulted in substantial fee awards. In addition, this amount includes fee for scope changes not included in the above totals.

2. Total - Original Program Price and Changes

While this sum may be self-explanatory, the attempt here is to furnish the initial costs plus an accumulation of all legitimate contract changes leaving all remaining contract cost growth in the contract overrun category.

3. Program Overrun

The HEXAGON Subsystem Overrun allocated between the Prime Contractor Perkin-Elmer and its Subcontractors occurred in the following areas:

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*Perkin-Elmer:

Technical Problems	\$ 6,100.
Program Schedule Extension	7,300.
Escalation due to Inflation	3,000.
Underestimated Scope	3,100.
	<u>\$19,500.</u>

*Subcontractors:

Radiation, Inc. (Electronics)	\$22,655.
RCA (Take-Up Assembly)	17,930.
Bollen Chivens, Kidde and Aerotherm (Encoders, Valves and Svg's)	2,491.
AC Division of General Motors (Subsystem Test Console)	3,763.
LMSC (Supply Unit Test Set)	2,661.
	<u>\$49,500.</u>

4. Final Program Contract Price

Once again this figure is probably self-explanatory but it should be pointed out that this total represents the costs associated with the initial Sensor Subsystem acquisition and does not include any costs associated with the HEXAGON follow-on procurement.

B.

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