NAVAL RESEARCH LABORATORY
WASHINGTON, D.C. 20390

IN REPLY REFER TO:
5600-RDM:eb
BYE-51911-68
20 August 1968

~~TOP SECRET~~
~~TOP SECRET~~
Handle via BYEMAN
Control System
~~TOP SECRET~~
HANDLE VIA BYEMAN CONTROL SYSTEM

From: Director, Naval Research Laboratory, Washington, D.C. 20390
To: Director, National Reconnaissance Office (Attn: [redacted] Comptroller)

Via: Director, Program "C" (CAPT MOFFIT)

Subj: Additional Costing details resulting from delay in Mission 7106

Ref: (a) NRO Memo to Dir Program "C" of 20 June 1968, BYE-13062-68
(b) NRL ltr of 18 April 1968, BYE-51903-68

Encl: (1) Summary of FY 68 cost obligations at NRL
(2) Summary of New work and FY 68 work carried over as a result of the Gravity Gradient Stabilization Problem
(3) Summary of cost estimates for FY 69
(4) Summary of cost estimates for FY 70

1. Background:

The memorandum of reference (a) established the launch configuration for Mission 7106 and in addition allocated the FY 69 funds to NRL, deducting $427 K funds for the digital system in [redacted] pending further review and deducting an anticipated $500 K of carry over funds. This reference (a) further requested a study report of the funding adjustments which will result from the launch delay for Mission 7106. The production of this report has necessarily been delayed until the final accounting of FY 68 was made available from NRL Comptroller office. The information requested, is summarized in the enclosures attached.

2. The precedent of deducting carry over funds from FY 69 allocation will result in a sizable deficit in the program funds at NRL. This is mostly due to the nature of the FY 68 carry over. During the flight experience with Mission 7105, careful analysis of the attitude sensor data revealed subtle irregularities in the performance of the Gravity Gradient Stabilization systems. Total analysis of this data late in FY 68 indicated the need to redesign the stabilization system to take into account the perturbations revealed in the flight data and to correct their effects in the system for Mission 7106. These costs of redesign of the stabilization system are itemized in enclosure (2). In summary, enclosure (3) shows that the costs for FY 69 are estimated to be the same as were submitted in April (reference (b)), enclosure (3) except for the $679 K of redesign and delay-FY 68 effort discussed in enclosure (2).

4. Enclosure (4) lists the costs estimated for FY 70 for the Mission 7107 and 7108 efforts. These estimates are the same as those submitted in April with the exception that $95 K worth of launch costs have been delayed into FY 71 since the Mission 7107 launch will have slipped (because of the Mission 7106 delay) into FY 71. The estimated long lead-time expenditures for Mission 7108 will remain essentially unchanged.

5. Summary:

Due to the technical difficulties which were isolated in Mission 7105 flight stabilization systems and the associated redesign of the stabilization systems for Mission 7106 a delay in the launch of Mission 7106 has resulted. This caused some of the FY 68 one-time costs and a series of new expenditures to be added to the estimate for FY 69 which was submitted in April (reference (b)) enclosure (3). This amounts to an additional $679 K to be added to the previous FY 69 estimate of $7164.4 K bringing the new total for FY 69 to $7843.4 K. Since the FY 69 allocation deducted the anticipated carry over funds in the amount of $500 K and the funds in support of the digital system for [redacted] his leaves an unfunded deficit for FY 69 of $961.4 K or $554.4 K without the [redacted] funds.

	F Y 1968	
	7106	7107
I. PAYLOAD (Development-recurring)		
A. Electronic Equipment (Data & TM)	714.5	310.0
B. Stabilization Systems	366.	
C. Powered Systems	63.	
D. Control Systems	163.	
E. Mechanical Structures & Fabrication	54.	
F. NRL Salaries & Overhead	1496.6	45.0
G. Misc. Materials, Travel & Shipping	635.0	30.0
	($3492.1 K)	($385.0 K)
II. GROUND STATION (Investment)		
A. Electronics (Rec, Record & Timing)	896.5	664.0
B. Antenna Systems	301.2	75.
C. NRL Salaries & Overhead	278.0	36.
D. Misc. Materials Travel & Shipping	383.4	45.
	($1859.1 K)	($820.0 K)
III. FACILITIES (Investment)		
A. Test equipment & facilities	407.8	100.0
	($407.8 K)	($100.0 K)
IV. SERVICES (Operational)		
A. Operational field assistance	694.0	
B. Computer Services	186.0	
	($880.0 K)	
	$6639.0 K	$1305.0 K

F Y 1968 = $7944.0 K

Encl (1) NRL ltr
BYE-51911-68

Approved for Release: 2024/06/10 C05026079

Summary of New work and FY 68 work carried over
as a result of the Gravity Gradient Stabilization Problem

ITEM	DESCRIPTION	COSTS
1.	Interlocking Boom Material development	$100.K
2.	Philco, Integration of new boom material into flight system	25 K
3.	Temperature and Thermal Vacuum Balance work on new boom material	50 K
4.	G.E., Rod/Wheel modification to accommodate new boom material	10 K
5.	Thermal Vacuum tests originally scheduled for last two months of FY 68, delayed into FY 69 ($2 K/day/Payload)	120. K
6.	GROUND STATION COSTS to provide the required near Real-Time monitoring for evaluation of the Stabilization Flight System data	
	(A) PCM Demodulator systems for	180 K
	(B) PCM Demodulator systems for	60 K
	(C) Improved computor system for GGS Data processing includes (Memory expansion, Hi-speed arithmetic unit, Card Reader and Line Printer plus display unit	134 K
	TOTAL	$679 K

Encl (2) NRL ltr
BYE-51911-68

	Delayed FY 68 & Redesign Est.	[redacted]	F Y 1969 7106	F Y 1969 7107
I. PAYLOAD (Development -recurring)				
A. Electronic Equipment (Data & TM)			200.0	699.0
B. Stabilization Systems	+305.		150.0	200.0
C. Powered Systems			10.0	60.0
D. Control Systems			25.0	125.0
E. Mechanical Structures & Fabrication			27.0	27.0
F. NRL Salaries & Overhead			816.9	567.5
G. Misc. Materials, Travel & Shipping			345.4	245.4
	(+$305. K)		($1574.3 K)	($1923.9 K)
II. GROUND STATION (Investment)				
A. Electronics (Rec. Record & Timing)	+240.	395.	405.0	400.0
B. Antenna Systems			95.0	80.0
C. NRL Salaries & Overhead			165.0	135.0
D. Misc. Materials Travel & Shipping			375.0	240.0
	(+$240. K)	($395. K)	($1040.0 K)	($855.0 K)
III. FACILITIES (Investment)				
A. Test equipment & facilities			208.1	218.2
			($208.1 K)	($218.2 K)
IV. SERVICES (Operational)				
A. Operational Field assistance		32.	398.0	330.0
B. Computer Services	+134.		75.0	115.0
	(+$134. K)	($32. K)	($473.0 K)	($445.0 K)
	$679. K	$427. K	$3295.4 K	$3442.0 K

F Y 1969 = $7843.4 K

F Y 1969 Funds -6882.0 K

Deficiency $ 981.4 K (Including [redacted] System)

Encl (3) NRL ltr
BYE-51911-68

Approved for Release: 2024/06/10 C05026079

F Y 1970

7107

I. PAYLOAD (Development-recurring)

A. Electronic Equipment (Data & TM)	800.0
B. Stabilization Systems	400.0
C. Powered Systems	100.0
D. Control Systems	175.0
E. Mechanical Structures & Fabrication	55.0
F. NRL Salaries & Overhead	1408.4
G. Misc. Materials, Travel & Shipping	635.0
	($3573.4 k)

II. GROUND STATION (Investment)

A. Electronics (Rec. Record & Timing)	100.0
B. Antenna Systems	20.0
C. NRL Salaries & Overhead	26.0
D. Misc. Materials Travel & Shipping	41.0
	($187.0 k)

III. FACILITIES (Investment)

A. Test equipment & facilities	350.0
	($350.0 k)

IV. SERVICES (Operational)

A. Operational field assistance	630.0
B. Computer Services	180.0
	($810.0 k)
	$6603.4 k

F Y 1970 =

Encl (4) NRL ltr
BYE-51911-68