

ORDER OF PRESENTATION

CHART #

- 1A MOL Status Report
- 2A Briefing Outline
- 3A MOL Program Problem

- Break-4A Background Outline

- 5A MOL Program Objectives
- 7A MOL Vehicle on Orbit
- 8A Interior of MOL Vehicle
- 9A List of Contractors
- 9B Prime Contractor Totals

- Break-10A Current Status

- 11A Technical Progress
- 12A Key Tech Regs Performance
- 13A " " " Power
- 14A " " " Weight
- 15A Perf of Man in MOL
- 16A " " " " "
- 17A Status of Hardware Development (Adapted, New, Facilities)

- Break- 18B Title Hardware Pictures

Bye 68308-69

CHART #

H-1 Titan IIIM Configuration
H-3 Titan IIIM Eng Demo
H-4 SRM Test Apr 69
H-5 SLC-6
H-6 MOL Support Fac
H-7 GEM B Schematic
H-8 GB Dual Gas BP
H-9 GB Adapter Test
H-10 PSA
H-11 Assy Area - MM DAC
H-12 AFT Sec MM
H-13 Static Load Test LM
H-14 AFT Sec LM
H-15 Fuel Cell
H-16 Airborne Dig Comp
H-18 Elec Cab Build-up
H-19 Miss Dev Sim GE
H-20 Assy Area
H-21 Track Mirror Sub
H-22 GE Image VELO Sensor
H-23 GE Lab Console

CHART #

- H-25 Command System
- H-26 EK Plant (EK)
- H-27 Test Facility (Schematic)
- H-28 Test Chamber
- H-29 Assy Area
- H-30 Camera Assy
- H-31 Model of Film Handling
- H-32 Model of Visual Optics
- H-33 Model of Film Processor
- H-34 Primary Mirror
- H-35 Thermal Model of Optical Assy
- H-36 Camera Optics APAR Eng Model
- 19A Summary of MOL Hardware Status

NOW TO 3RD STACK

- Break-1 Program Progress
- 2 Financial Position
- 3 Cum Effect of 67-68-69 Funding Direction
- 4 Key Facts
- 5 Key Facts
- 6 Impact of Redirections on MOL Contractors

CHART #

7 Contractors' Personal Views

Next two charts are double projection with successive overlays for each -- first basic charts, then overlay #1 on each, then overlay #2, etc.

8 Fiscal Funding Chart

9 Funding Impact Chart

10 Contractor Manpower Requirements

11 Technical Impact

12 MOL Eng Dev Chart with Overlays

12-1

First ^{1A}2A, then ^{1B}2B on top of ^{1A}2A

then remove ^{1A}2A and ^{1B}2B, and put 2A and 2B together

NEXT TWO CHARTS ARE DOUBLE PROJECTION

13 Integrated Test Flow

14 Int Test Flow (FY 69 Baseline) -- Use basic first, then

14-1

1A, then remove 1A and use 2A corresponds to 3 major points on Int Test Flow Chart

Break-15 FY 70 Program Analysis

16 Faced Facts

17 Systems Office Action

5

CHART #

- 18 Systems Office Action
- 19 Systems Office Action
- 20 Systems Office Action
- 21 Systems Office Action
- 22 Systems Office Action

DOUBLE PROJECTION 23 AND 23-1

23, 23-1 Adjusted FY 70-71 Program Analysis Schedule

- 24 Adjusted FY 70-71 Program Analysis Schedule
- 25 FY 70 Regs vs Funds
- 26 FY 70-71-72 Funding Regs for New Plan
- 26-1 INITIAL FY 71 BOD-EYS
- 27 Alternatives

- Break-28 Conclusions
- 29 Conclusions Tech
- 30 Conclusions Finan and Adj Program
- 31 Final Considerations
- 32 Final Considerations
- 33 Opinion

1A

~~SECRET~~ DORIAN

MANNED ORBITING LABORATORY PROGRAM

STATUS REPORT

9 MAY 1969

~~SECRET~~ DORIAN

~~SECRET~~ DORIAN

2A

BRIEFING OUTLINE

- BACKGROUND
- CURRENT STATUS
- FY 70 PROGRAM ANALYSIS

~~SECRET~~ DORIAN

68308-49

3A

~~SECRET~~ DORIAN

MOL PROGRAM

• THE MOL PROGRAM HAS SUFFERED THROUGH A LACK OF FUNDING STABILITY IN FY 67 - 68 - 69 TECHNICAL PROGRESS HAS AND IS BEING ACHIEVED BUT THE PROGRAM HAS REACHED A POINT OF MATURITY WHERE INTEGRATION OF THE INDIVIDUAL CONTRACTOR DEVELOPED HARDWARE REQUIRES A PERIOD OF STABILIZED FUNDING OF AT LEAST TWO YEARS

~~SECRET~~ DORIAN

~~SECRET~~ DORIAN

4A

• BACKGROUND

• MOL PROGRAM OBJECTIVES

• MOL VEHICLE

• MOL CONTRACTORS

~~SECRET~~ DORIAN

~~SECRET~~ DORIAN

MOL PROGRAM OBJECTIVES

• SEC DEF MEMO TO PRESIDENT - 24 AUG 1965
(RECOMMENDED MOL PROGRAM APPROVAL)

• OBJECTIVES FOR MOL PROGRAM

- OPERATIONAL INTELLIGENCE COLLECTION AT
A RESOLUTION OF [REDACTED]
- KNOWLEDGE OF THE NATURE AND VALUE OF
CRITICAL CONTRIBUTIONS OF MAN TO PHOTOGRAPHIC
RECONNAISSANCE AND TO OTHER MILITARY RELATED
SPACE MISSIONS

~~SECRET~~ DORIAN

5A

~~SECRET~~ DORIAN

9A

MOL CONTRACTORS

MCDONNELL DOUGLAS - WD	LABORATORY VEHICLE
MCDONNELL DOUGLAS - ED	GEMINI B
GENERAL ELECTRIC COMPANY	MISSION MODULE
EASTMAN KODAK	PHOTO PAYLOAD
MARTIN MARIETTA CORPORATION	TIIM-CORE
UNITED TECHNOLOGY CENTER	TIIM PROPULSION (SOLID)
AEROJET - GENERAL CORPORATION	TIIM PROPULSION (LIQUID)
AC ELECTRONICS DIVISION	TIIM GUIDANCE SYSTEM
WHIRLPOOL CORPORATION	FEEDER SYS ASSY (FOOD)
HAMILTON STANDARD DIVISION	MOL PRESSURE SUIT
TRW SYSTEMS GROUP	SOFTWARE

~~SECRET~~ DORIAN

~~SECRET~~ DORIAN

9B

PRIME CONTRACTOR TOTALS

• CURRENT FY 69 BASELINE

	<u>\$ MILLIONS</u>	<u>MAJOR SUBCONTRACTS</u> <u>\$ MILLIONS</u>
MDAC-WD	1459	452
MDAC-ED	307	89
GE	538	151
EK	615	148
MMC	209	15
ACED	53	19
ACC	56	6
UTC	127	34

~~SECRET~~ DORIAN

10A

~~SECRET DORIAN~~

• CURRENT STATUS

• TECHNICAL PROGRESS

• PROGRAM PROGRESS

~~SECRET DORIAN~~

~~SECRET~~-DORIAN

11A

68308-69

• TECHNICAL PROGRESS

• MOL PROGRAM IS TOTALLY DEFINED

- REQUIREMENTS ANALYSES COMPLETED RESULTING SET OF DOCUMENTATION DEFINES DETAIL SPECIFICATIONS FOR ALL END ITEMS OF HARDWARE ... EACH JUSTIFIED UNDER CRITICAL REVIEW EACH CONTRACTOR HAS ACKNOWLEDGED HIS PORTION OF THE TOTAL REQUIREMENTS HAS PRICED THE EFFORT AND HAS EITHER NEGOTIATED OR IS IN NEGOTIATION ON A MUTUALLY UNDERSTOOD TECHNICAL EFFORT ... BY BOTH CONTRACTOR AND GOVERNMENT

• MOL PROGRAM IS PROGRESSING

- NO SINGLE CONTRACTOR, SUBCONTRACTOR, HARDWARE, SOFTWARE, FACILITY, SUPPORT EQUIPMENT OR ANY OTHER ITEM PACES THE PROGRAM ... THE SCHEDULE OF ALL TECHNICAL ACTIVITY, UP TO AND INCLUDING LAUNCH, IS PREDICTABLE

• MOL PROGRAM IS MEETING ORIGINAL OBJECTIVES

- IT CAN BE SHOWN THAT THE SPECIFICATION VALUES DETERMINED BY DETAIL ANALYSIS TO MEET [REDACTED] RESOLUTION, POINTING, TRACKING AND POSITIONING ARE NOW BEING MET AND SHOULD CONTINUE TO BE MET IN THE FUTURE

~~SECRET~~-DORIAN

~~SECRET~~ DORIAN

KEY TECHNICAL REQUIREMENTS

12A

<u>SPEC RQMTS</u>	<u>CURRENT* STATUS</u>	<u>PROJECTED VALUE</u>
-------------------	------------------------	------------------------

PERFORMANCE

- MAIN OPTICS (NOMINAL)
- RESOLUTION [REDACTED]
- POINTING (MIN OF ARC)
- MAIN OPTICS ERROR BUDGET
- TRACKING MIRROR DRIVE (MICRO RAD/SEC)
- IMAGE VELOCITY SENSOR (MICRO RAD/SEC)
- VIBRATION SMEAR RATE (MICRO RAD/SEC)
- CREW TRACKING (MICRO RAD/SEC)

ACQUISITION AND TRACKING SCOPES

- RESOLUTION (FEET) 3.3 2.6 <3.3
- POINTING (MIN OF ARC) ±10 ±8.6 <±10

VISUAL OPTICS

- RESOLUTION [REDACTED]

* VALUES BASED ON ACTUAL TEST RESULTS

~~SECRET~~ DORIAN

~~SECRET~~ DORIAN

13A

KEY TECHNICAL REQUIREMENTS

	<u>SPEC REQUIREMENT</u>	<u>CURRENT STATUS</u>	<u>PROJECTED VALUE</u>
•	<u>POWER</u>		
•	MOL VEHICLE AVERAGE POWER (WATTS) (2200 WATTS CAPABILITY)	1,626	1,626
•	MOL VEHICLE PEAK POWER (WATTS) (5450 WATTS CAPABILITY)	3,964	3,964

~~SECRET~~ DORIAN

~~SECRET~~ DORIAN

14A

KEY TECHNICAL REQUIREMENTS

PROJECTED
VALUE

CURRENT
STATUS

SPEC
REQUIREMENT

WEIGHT

- BOOSTER (LBS)
THIM CAPABILITY
(80 x 187, 90° ORBIT) 30,850 30,980 31,040
- MOL VEHICLE (LBS) 30,091 29,522 30,091
- PAYLOAD MARGIN (LBS) 759 1,458 949

~~SECRET~~ DORIAN

~~SECRET~~ DORIAN

15A

PERFORMANCE OF MAN IN THE MOL

• OBJECTIVE - KNOWLEDGE OF THE NATURE AND VALUE OF CRITICAL CONTRIBUTIONS OF MAN TO PHOTOGRAPHIC RECONNAISSANCE AND TO OTHER MILITARY RELATED MISSIONS

• RESULTS TO DATE

• SIMULATIONS

• HAVE DEMONSTRATED THE ABILITY OF THE MOL CREW TO PERFORM MANUAL POINTING AND TRACKING WITH ACCURACY AN ORDER OF MAGNITUDE FINER THAN HAD BEEN PREDICTED

• ZERO G AIRCRAFT FLIGHTS

• DEMONSTRATED THE ABILITY OF THE MOL CREW TO DETACH, TRANSFER AND STOW FILM RETURN CONTAINERS IN THE GEMINI TRAVERSING THE TUNNEL BOTH SUITED AND UNSUITED

• DEMONSTRATED THE CREW ABILITY TO TRANSFER IN EMERGENCY MODE SUIT PRESSURIZED VIA THE TRANSFER TUNNEL OR EXTERNALLY FROM THE LAB TO THE GEMINI

~~SECRET~~ DORIAN

~~SECRET-DORIAN~~

167

• SYSTEM DESIGN

• HARDWARE AND SOFTWARE DESIGN SO THAT THE ON ORBIT RECONNAISSANCE CAN BE FULLY COMMANDED FROM THE GROUND OR FULLY OPERATED BY THE CREW ... OR FLEXIBLY INTERMESHED AS NECESSARY

• THE CREW HAS BEEN INTEGRATED INTO THE SYSTEM TO PROVIDE VERIFICATION (FOCUS, ALIGNMENT) ... FINE TUNING (NULL POINTING AND TRACKING ERRORS) AND WORK AROUND MULTIPLE EQUIPMENT FAILURES

• THE CREW WILL ADD TO HIGH VALUE OF RECONNAISSANCE BY IDENTIFYING AND SELECTING ACTIVE TARGETS (MISSILE ON PAD) ADJUSTING EXPOSURE FOR SCENE BRIGHTNESS (HAZE, SHADOWS) AVOID WEATHERED IN TARGETS CAPABILITY FOR [REDACTED]

• CONCLUSION

• EXPERIENCE TO DATE HAS INCREASED INSIGHT INTO MAN'S ABILITY, PROVIDING HIGH CONFIDENCE THAT MAN WILL MAKE A SUBSTANTIAL CONTRIBUTION TO NOT ONLY PHOTOGRAPHIC RECONNAISSANCE BUT OTHER RELATED MILITARY MISSIONS

~~SECRET-DORIAN~~

17A

~~SECRET~~ DORIAN

STATUS OF HARDWARE DEVELOPMENT

• THE MOL PROGRAM UTILIZES

- 37 MAJOR HARDWARE ITEMS THAT HAVE BEEN ADAPTED FROM PREVIOUS OR EXISTING NASA OR DOD PROGRAMS
- 39 MAJOR NEW HARDWARE ITEMS THAT HAVE BEEN OR ARE BEING DEVELOPED
- 23 MAJOR FACILITIES THAT HAVE BEEN BUILT OR ARE FINISHING UP CONSTRUCTION
- EVERY ITEM OF EVERY SUBSYSTEM OR COMPONENT NEEDED TO MEET THE MOL SYSTEM PERFORMANCE HAS BEEN IDENTIFIED AND IS IN BEING IN VARYING STAGES FROM BREADBOARD TO FINAL FLIGHT HARDWARE

~~SECRET~~ DORIAN

185

HARDWARE PICTURES

~~SECRET~~-DORIAN

SUMMARY OF MOL HARDWARE STATUS

19A

67-80E57

- ALL INDIVIDUAL HARDWARE ITEMS DEFINED AND IN BEING IN VARIOUS STAGES OF ASSEMBLY AND TEST

- INTEGRATED TESTS AT THE SYSTEM LEVEL, SCOPED, SCHEDULED AND UNDERSTOOD

- PRIME AREAS

- THERMAL
- DYNAMIC
- ACOUSTIC
- ELECTRICAL
- VACUUM

- SECOND ORDER INTEGRATED TESTS AT THE SYSTEM LEVEL ARE NOT YET FULLY DEFINED BUT ANALYSES ARE EITHER IN WORK OR COMPLETED

- PRIME AREAS

- CONTAMINATION
- NONMETALLIC MATERIALS HAZARDS
- FLAMMABILITY TESTS

~~SECRET~~ DORIAN

PROGRAM PROGRESS

- MANAGEMENT IMPACT OF CUM
FY 67 - 68 - 69 FUNDING REDIRECTION
- FINANCIAL
- TECHNICAL

69-30087

~~SECRET~~ DORIAN

~~SECRET~~

MOL FINANCIAL POSITION
(Millions)

	<u>END-FY 68</u>	<u>END-FY 69</u>	<u>END-FY 70</u>
o <u>CONTRACTOR ACTUALS</u>			
EXPENDITURES/FEEES	678.2	1225.0	1923.4(3)
NONCANCELLABLE COMMITMENTS	<u>71.5</u>	<u>86.1</u>	<u>75.0(3)</u>
Sub-total:	749.7	1311.1	1998.4
o <u>SPECIAL TERMINATION COSTS(1)</u>	54.6	59.2	65.0(3)
o <u>TOTAL GOVERNMENT LIABILITY</u>	804.3	1370.3	2063.0(3)
o <u>AVAILABLE OBLIGATING AUTHORITY</u>	722.6(2)	1237.6(2)	1762.6(4)

FOOTNOTES

- (1) INCLUDES PEOPLE TERMINATION COSTS, EQUIPMENT STORAGE, FACILITY SHUTDOWN, ETC.
- (2) EXPENDITURES/FEEES COVERED OK AT END FY 68 AND FY 69.
- (3) CONTRACTOR ESTIMATES BASED ON JULY 1968 SCHEDULE.
- (4) INCLUDES \$525M FY 70 NOA.

~~SECRET~~

~~SECRET~~ DORIAN

3

CUMULATIVE EFFECT OF FY 67 - 68 - 69 FUNDING DIRECTION
AND FORECAST FY 70

FUNDING

- FY 68 PLANNED OF 587 MILLION BECAME ACTUAL 430 MILLION - 157
- FY 69 PLANNED OF 640 MILLION BECAME ACTUAL 515 MILLION - 125
- FY 70 PLANNED OF 600 MILLION* BECAME ACTUAL 525 MILLION* - 75
(357)

- * FY 68 AND 69 PLAN FIGURES WERE BASED ON REQUIREMENTS
- FY 70 PLAN FIGURE WAS NOT BASED ON REQUIREMENTS

~~SECRET~~ DORIAN

~~SECRET~~-DORIAN

4

CUMULATIVE EFFECT OF FY 67 - 68 - 69 FUNDING DIRECTION
AND FORECAST FY 70

• KEY FACTS

• FY 70 IS THIRD SUCCESSIVE YEAR MOL PROGRAM HAS BEEN FUNDED BELOW
RECOGNIZED NEEDS

• EQUALLY AS IMPORTANT AS CURRENT YEAR FUNDING IS RELATED
DIRECTION AND TIMING OF DIRECTION REGARDING CURRENT AND NEXT
YEAR FUNDING -----

- FY 67 WAS ENTERED INTO AND EFFORT SCHEDULED TO 587 FOR FY 68

- MAY - JUN 1967 MAJOR REDIRECTION USE 480 AS BASIS FOR
SCHEDULING EFFORT

- SEP - OCT 1967 McNAMARA PERSONAL VISIT "OPTIMIZE TO
PERFORMANCE AND AVAILABLE\$... ADJUST SCHEDULE" DECELERATED
PROGRAM MOMENTUM

- NOV - DEC 1967 REDUCE FY 68 EFFORT TO 430 FOR BALANCE OF
FY 68. FUNDING LEVEL OF 640 FOR FY 69 WAS RECOGNIZED

- JAN - JUN 1968 FY 69 PROGRAM FUNDING ALTERNATIVES
STUDIED HOWEVER 600 IN THE MOL LINE LAST QUARTER
FY 68 EFFORT STILL GEARED TO 600 IN FY 69

~~SECRET~~-DORIAN

5

~~SECRET~~ DORIAN

JUL 1968 515 for FY 69 PLAN AND SCHEDULE EFFORT FOR

FULL FY 70 FUNDING

AUG - SEP 1968 PLAN FY 70 FOR 600 RAISES QUESTION ON

POTENTIAL SCHEDULE ADJUSTMENT IN FY 70

JUL 1968 - 1 APR 1969 LONGEST PERIOD OF STABILITY IN ENTIRE

LIFE OF PROGRAM

2 APR 1969 DEMISE OF MOL PROGRAM STABILITY

2 APR - 15 APR 1969 PLAN 600 PLAN 576 PLAN 556

PLAN 525

TIME NOW SCHEDULE 31 MONTHS FROM 1ST MANNED LAUNCH AND

HOLDING

~~SECRET~~ DORIAN

~~SECRET~~-DORIAN

CUMULATIVE EFFECT OF FY 67 - 68 - 69 FUNDING DIRECTION

AND FORECAST FY 70

- IMPACT OF REDIRECTIONS ON MOL CONTRACTORS
 - THREE CONSECUTIVE AMENDMENTS TO 9 MAJOR ASSOCIATE CONTRACTS WHICH HAD TO BE SUBSEQUENTLY NEGOTIATED SEPARATELY AND THEN AS AN INTEGRATED WHOLE
 - CONTRACTORS HAVE REPEATEDLY BEEN DIRECTED TO ADJUST, DELAY OR REDUCE MATERIALS, HARDWARE, AND COMMITMENTS - SEVERAL MAJOR CONTRACTORS HAVE GONE BACK TO READJUST SUBCONTRACTORS AS MANY AS 3 AND 4 TIMES!
 - CONTRACTOR MANPOWER HAS BEEN REPEATEDLY ADJUSTED, SHIFTED, AND REDUCED BETWEEN ENGINEERING, MANUFACTURING AND TEST
 - DEVELOPMENT DEFERMENT DECISIONS HAVE BEEN BASED ON EXPECTED NEXT YEAR FUNDING GUIDANCE - FAILURE TO PROVIDE ANTICIPATED FUNDS INVALIDATED THE TECHNICAL DEFERMENT DECISIONS OF THE PRIOR YEAR!

~~SECRET~~-DORIAN

~~SECRET~~ DORIAN

APRIL 1969

A PERIOD OF CONTINUOUS FACE-TO-FACE DISCUSSION WITH ALL MOL MAJOR CONTRACTORS ... ALL OF WHOM HAVE EXPRESSED COMMON CONCERNS ... BASED UPON THE REPEATED REDIRECTIONS....

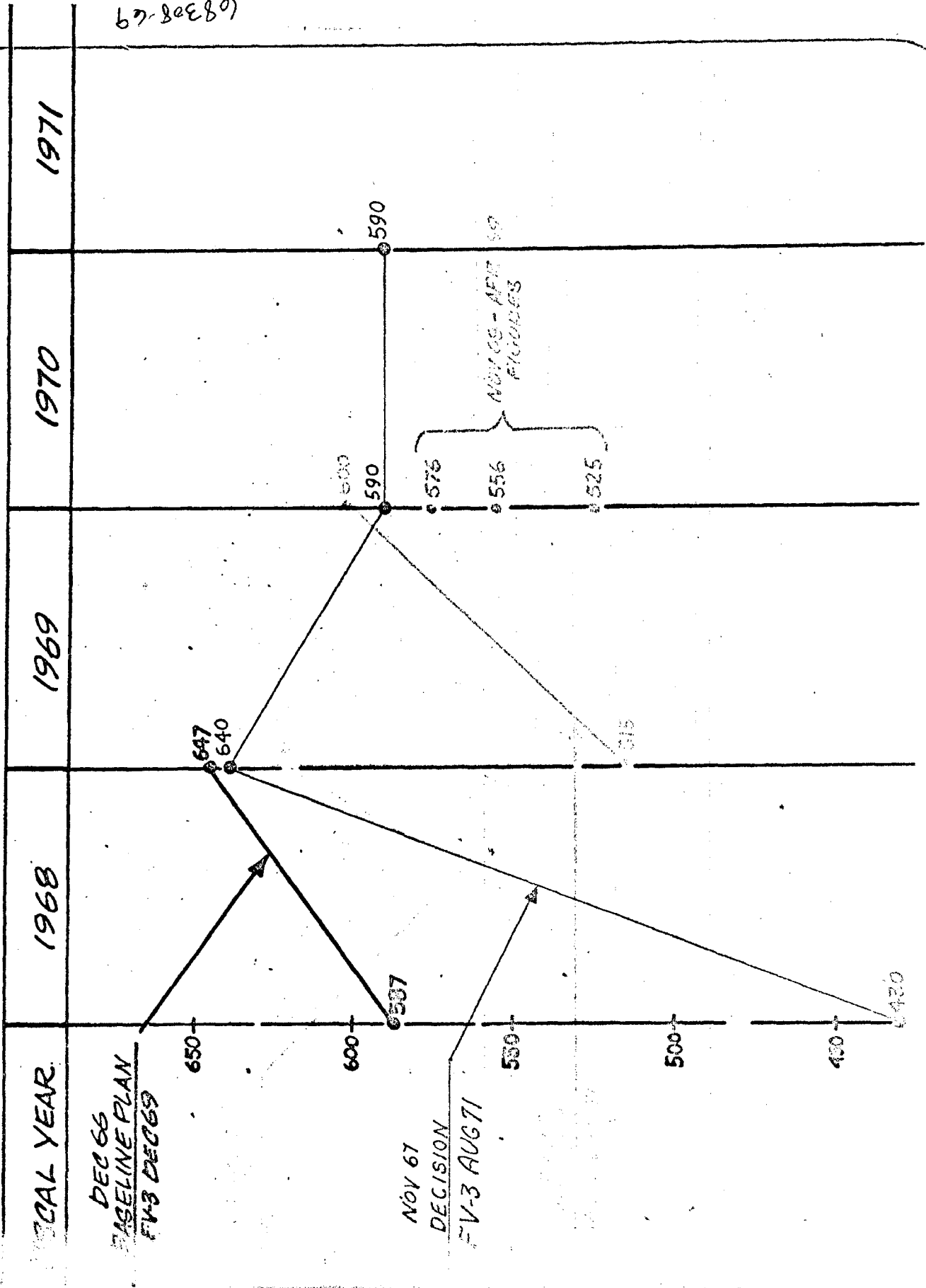
• CONTRACTORS' PERSONAL VIEWS

- STRETCHOUT COSTS ARE NOT BUYING PRODUCTIVE EFFORT SINCE MOST HARDWARE COMMITMENTS HAVE BEEN MADE
- STRETCHOUT COSTS ARE INCREASING THE BURDEN OF SUSTAINING PROGRAM COSTS (ADMIN SUPERVISORY REPLANNING AND RESCHEDULING)
- STRETCHOUT INCREASES COSTS LABOR AND MATERIAL RATES UP (4-8) ANNUALLY JUST PLAIN ECONOMIC INFLATION
- STRETCHOUT EFFECTS SUBCONTRACTOR COSTS RENEGOTIATED AT TODAY'S HIGHER RATES
- STRETCHOUT REDUCES PROGRAM MOMENTUM AND REQUIRES REACCOMPLISHMENT OF A LARGE AMOUNT OF PLANNING IN ADMIN, ENGINEERING, MANUFACTURING AND TEST
- ONE WAY TO REDUCE MOL COST IS TO INCREASE THE MOMENTUM OF THE PROGRAM AND REDUCE THE PERIOD OF PERFORMANCE TO WHAT THE PROGRAM IS FULLY CAPABLE OF ACHIEVING

~~SECRET~~ DORIAN

MOL PROGRAM FUNDING - DECISIONS

67-80989



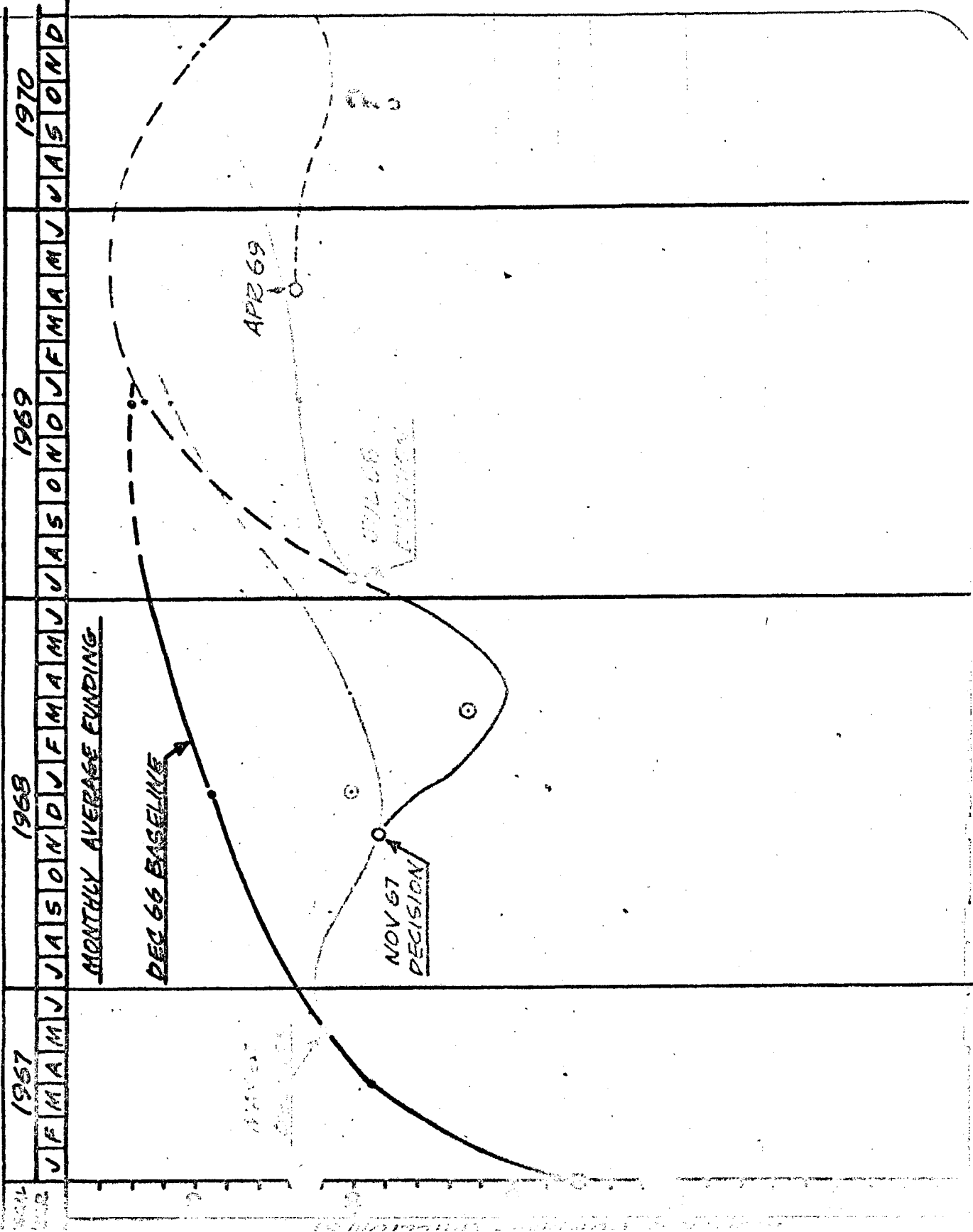
DEC 66
BASELINE PLAN
FY3 DEC 69

NOV 67
DECISION
FY-3 AUG 71

NOV 68 - APR 69
PROPOSALS

EFFECT OF MOL BUDGET DECISIONS

9



1967

1968

1969

1970

J F M A M J

J A S O N D

J F M A M J

J A S O N D

J F M A M J

J A S O N D

J A S O N D

MONTHLY AVERAGE FUNDING

DEC 66 BASELINE

NOV 67
DECISION

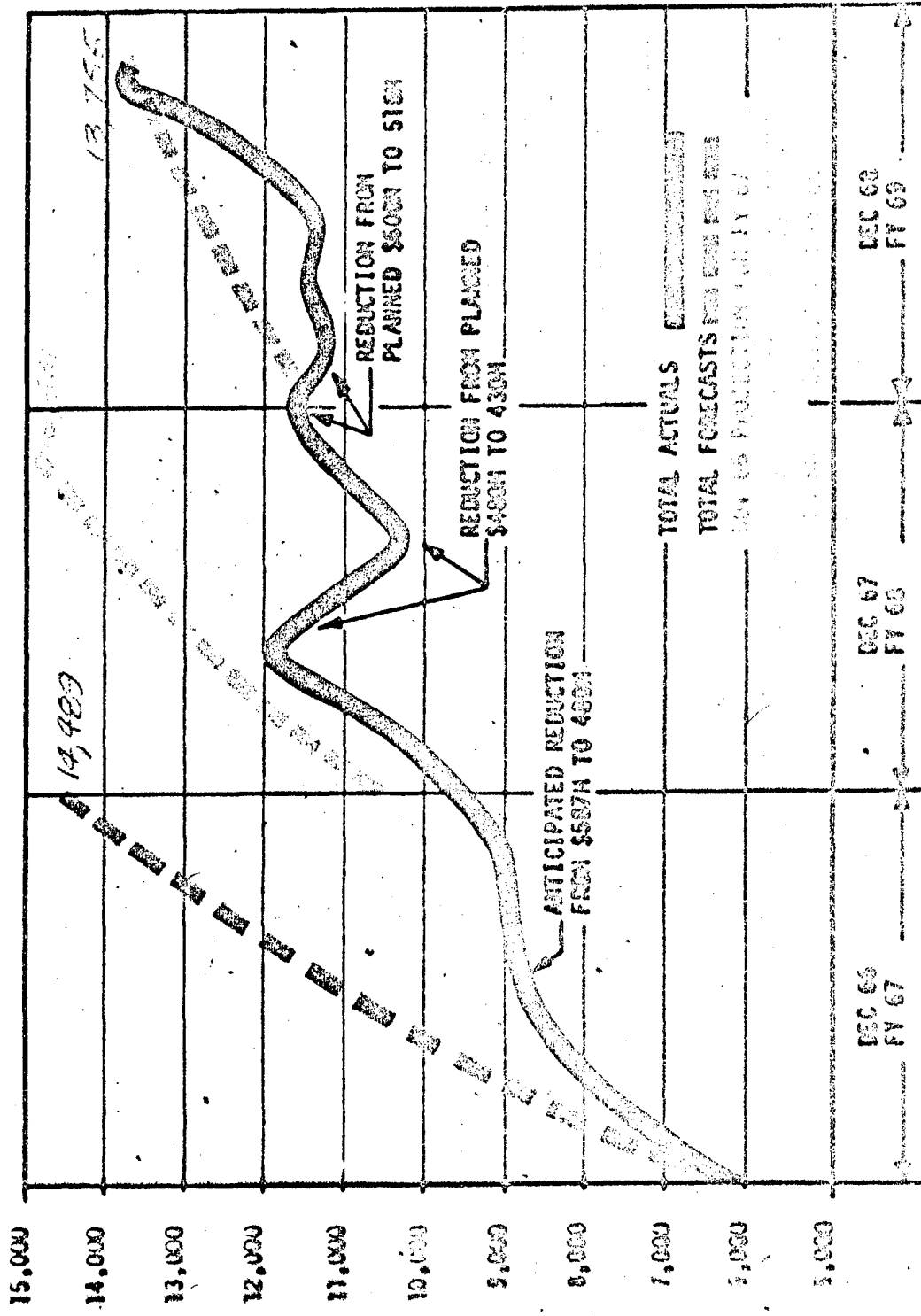
APR 69

1974-68
FUNDING

68-308-89

10

MOL CONTRACTOR MANPOWER REQUIREMENTS FISCAL YEAR IMPACT



DEC 66
FY 67

DEC 67
FY 68

DEC 68
FY 69

TOTAL ACTUALS
TOTAL FORECASTS FROM DEC 66 TO DEC 67

~~SECRET~~ DORIAN

MANAGEMENT IMPACT OF CUM FY 67 - 68 - 69 FUNDING REDIRECTION

• TECHNICAL IMPACT

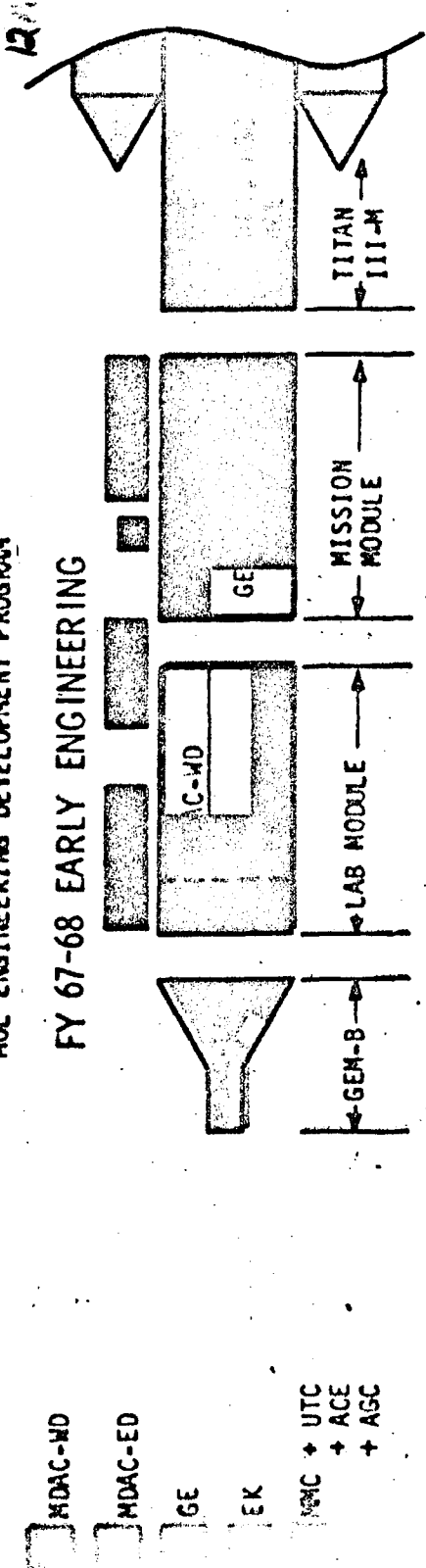
- INTEGRATED TEST FLOW PHASE REQUIRES AT LEAST
TWO YEAR PROGRAM STABILITY WHICH THE PROGRAM
HAS NOT BEEN ABLE TO ACHIEVE

~~SECRET~~ DORIAN

~~SECRET~~ DORIAN

MOL ENGINEERING DEVELOPMENT PROGRAM

FY 67-68 EARLY ENGINEERING



CUM FUNDING THRU FY 68

KEY FEATURES:

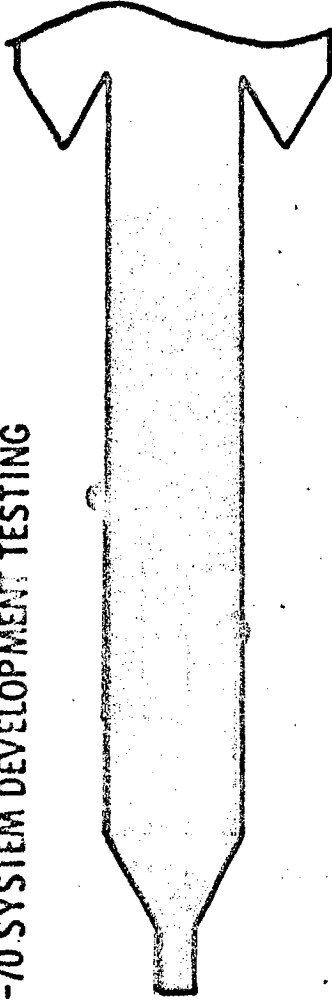
- o INDEPENDENT SEGMENT DEVELOPMENT DOMINATES.
- o EACH SEGMENT INSENSITIVE TO FUNDING ADJUSTMENT OF OTHERS
- o EK FULLY FUNDED AS PACING DEVELOPMENT
- o TECHNOLOGY AND FUNDS PACE PROGRAM.
- o SOME MANAGEMENT FLEXIBILITY.

~~SECRET~~ DORIAN

~~SECRET~~ DORIAN

12-1

FY 69-70 SYSTEM DEVELOPMENT TESTING



DCAC-WD

DCAC-ED

JE

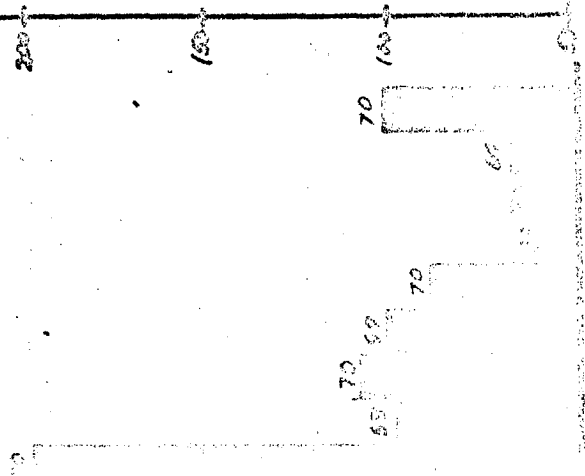
EX

- ◆ UTC
- ◆ ACE
- ◆ AGC

FY 69-70 PLAN

KEY FEATURES:

- MAJOR INTEGRATED HARDWARE TEST DOMINATES
(DYNAMIC, THERMAL, ELECTRICAL)
- EACH SEGMENT SENSITIVE TO FUNDING ADJUSTMENT
OF OTHERS
- MAJOR TEST EFFORTS REQUIRE TWO YEAR
FUND COMMITMENT
- NO ONE CONTRACTOR PACES PROGRAM
- FUNDING PACES PROGRAM
- NO MANAGEMENT FLEXIBILITY



~~SECRET~~ DORIAN

~~SECRET~~ DORIAN

INTEGRATED TEST FLOW

JUL 1968 DECISION ADJUSTED FLOW STILL HAD LATITUDE FOR BLOCK SLIDE
OF TEST FLOW FINISHING DOMINANT PERIOD OF INDIVIDUAL
SEGMENT ACTIVITY ONLY
FY 69 - 70 FLOW PLANNED TO PEAK IN FY 70 IN ACCORDANCE WITH FY 69 BUDGET
AND FY 70 PLANNED FUNDING CRITICAL TWO YEAR SPAN
.... MAJOR TEST ACTIVITIES TAKE TWO YEARS OR MORE IN
TIME SPAN

EXAMPLES:

○ INTEGRATED DYNAMIC TESTING INVOLVES 4 MAJOR
CONTRACTORS

○ INTEGRATED THERMAL TESTING INVOLVES 4 MAJOR
CONTRACTORS

○ ELECTRICAL COMPATIBILITY TESTING 5 MAJOR
CONTRACTORS (INTEGRATED HARDWARE .. SOFTWARE ..
AGE .. SUPPORT EQUIPMENT)

• MAY 1969 SELECTION WE ARE ALREADY INTO THE FLOW ADJUSTMENT FLEXIBILITY
IS NIL FORCED TO REMOVE SOME CONTENT TO REDUCE FY 70
FUND IMPACT CASH IN SOME CONFIDENCE AND INSURANCE
BUT CRITICAL TWO YEAR SPAN STILL EXISTS FOR FY 70 AND 71

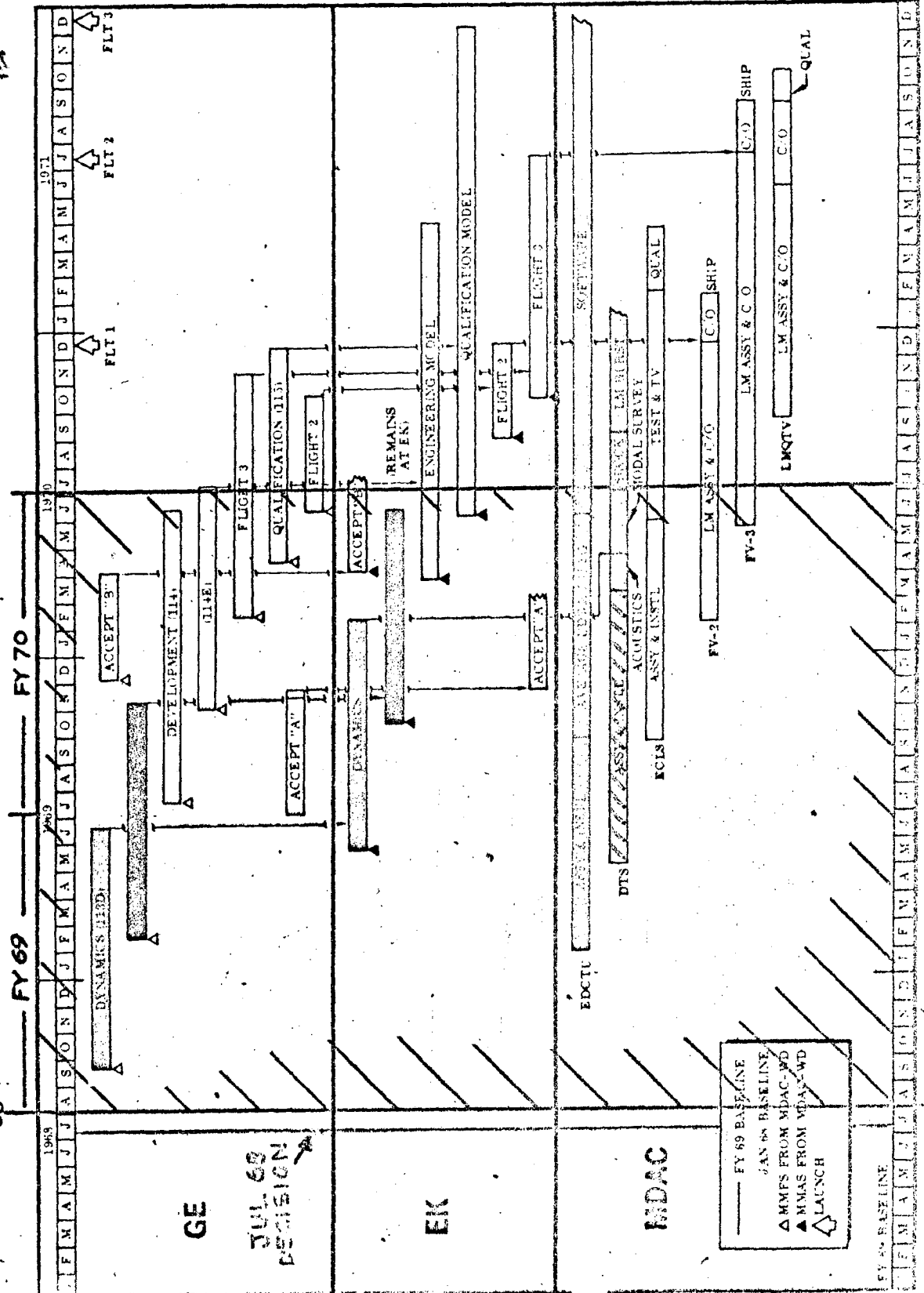
13

~~SECRET/DORIAN~~

SIF-77 28 05467 -68
COPY 2

INTEGRATED TEST FLOW (FY 69 BASELINE)

JULY 68

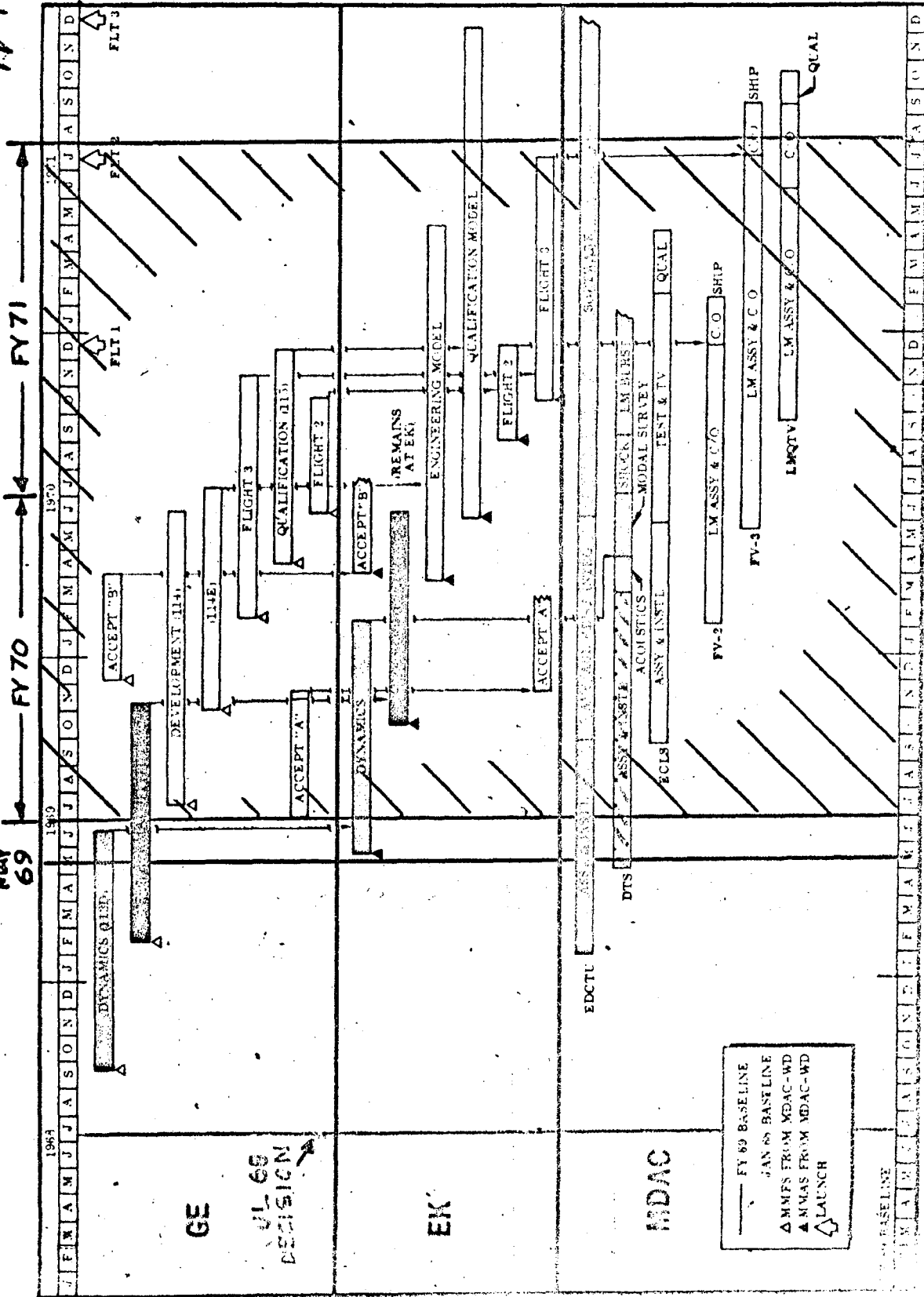


~~SECRET/DORIAN~~

~~SECRET/DORIAN~~

INTEGRATED TEST FLOW (FY 69 BASELINE)

OIF-77 28 05487 -08
COPY 2
19-1



~~SECRET/DORIAN~~

~~SECRET~~ DORIAN

16

FY 70 MOL PROGRAM ANALYSIS

• FACED FACTS

- SEC DEF ANNOUNCED TO CONGRESS MOL FUNDING IN FY 70 WOULD BE 525 MILLION
- RECOGNIZED THAT CUM EFFECT OF 3 YEARS OF "BOW WAVING" DOLLAR REQUIREMENTS HAS CREATED A FISCAL SITUATION WHERE THE DIFFERENCE BETWEEN FY 70 NEEDS AND PLANNED FUNDING SO GREAT (ON THE ORDER OF 200 MILLION) THAT PRESENT FY 69 TECHNICAL BASELINE PROGRAM COULD NOT SURVIVE . . . REGARDLESS OF SCHEDULE ADJUSTMENT
- THEREFORE SYSTEMS OFFICE HAS TAKEN IMMEDIATE AND DRASTIC ACTION . . .

~~SECRET~~ DORIAN

~~SECRET~~ DORIAN

FY 70 MOL PROGRAM ANALYSIS

- FACTS
- ACTIONS
- ADJUSTED PROGRAM
- CONCLUSIONS

~~SECRET~~ DORIAN

~~SECRET~~ DORIAN

FY 70 MOL PROGRAM ANALYSIS

• SYSTEMS OFFICE ACTION

• 1ST ACTION

- CHANGE 4TH QUARTER FY 69 EFFORT PROVIDE IMMEDIATE RELIEF TO PREVENT HIRING AND FIRING DEFER COSTS IMPACT ALL SUBS RESULT AUTOMATIC 3 MONTH, STRAIGHT SCHEDULE SLIP ACROSS ALL ELEMENTS OF PROGRAM

• 2ND ACTION

- WHAT WOULD 525 DO TO PROGRAM BASED ON SECRETARY LAIRD DIRECTION ABOVE ?

• ASSESSMENT

- FROM 1 APR 1969 33 MONTHS FROM 1ST MANNED LAUNCH PLUS HOLDING FOR LAST 3 MONTHS OF THIS FISCAL YEAR PLUS 15 - 18 MONTHS ADDITIONAL ADJUSTMENT

- RESULT 1ST MANNED LAUNCH 3RD QUARTER CALENDAR 73

• CONCLUSION

- UNACCEPTABLE TAKE MORE DRASTIC ACTION

~~SECRET~~ DORIAN

~~SECRET~~-DORIAN

18

- PREMISE FROM RESULTS OF 2ND ACTION
- RECOGNIZING WE COULD NOT REALISTICALLY DO THE PROGRAM AS CURRENTLY CONFIGURED
- FURTHER RECOGNIZING THAT IF WE HAD TO LIVE WITH 525 IN FY 70 DRASTIC CHANGES HAD TO BE MADE
- 1ST MANNED FLIGHT COULD NOT BE DELAYED BEYOND A REASONABLE SLIP TO KEEP THE PROGRAM CREDIBLY ECONOMIC
- FUNDING WOULD HAVE TO BE REALISTICALLY ADJUSTED EVEN IF REDUCTION IN PROGRAM CONTENT RESULTED AND TWO YEAR STABILITY MUST BE ACHIEVED IF IT IS TO SURVIVE
- 3RD ACTION
- DIRECTION TO SYSTEMS OFFICE
- BASED ON THE FOLLOWING SPECIFIC GUIDELINES TO THE SYSTEMS OFFICE:
 - DROP FLIGHT VEHICLE NO. 7
 - CONVERT FLIGHT VEHICLE NO. 6 TO A MANNED CONFIGURATION
 - USE 6 MONTH CENTERS BETWEEN MANNED LAUNCHES
 - BUDGET FOR FY 70 IS 525 MILLION
- SYSTEMS OFFICE DIRECTION TO THE CONTRACTOR WHICH INCLUDED THE ABOVE SPECIFICS WAS AS FOLLOWS:

~~SECRET~~-DORIAN

~~SECRET~~ DORIAN

19

- THERE WILL BE NO COMPROMISE OF MANNED SAFETY
- THERE WILL BE NO DEGRADATION OF SYSTEM PERFORMANCE
IN EITHER QUALITY QUANTITY OR DURATION
- SET A REALISTIC DATE FOR 1ST MANNED FLIGHT
- BE AS SEVERE AS POSSIBLE WITH FY 71 FUNDING ESTIMATES
- RECOGNIZE CLEARLY THAT UNLESS WE CAN LIVE WITH THE FY 70
DOLLARS AND STILL COME DOWN HARD ON FY 71 REQUIREMENTS SO
THEY ARE WITHIN AN ACCEPTABLE CEILING THE MOL PROGRAM CANNOT
SURVIVE
- ADJUST THE RESULTING ELEMENTS OF YOUR SCHEDULE AS MUCH AS
FUNDING WILL PERMIT ALL SCHEDULE RELIEF MUST BE ACCOMPLISHED
WITHIN PLANNED FUNDS
- IF A REALISTIC SCHEDULE ADJUSTMENT CANNOT BE ACCOMPLISHED
WITHIN THESE FUNDING GUIDELINES THEN PROPOSE ELEMENTS OF
PROGRAM TECHNICAL CONTENT FOR DELETION
- DIRECTOR MOL (GENERAL FERGUSON) APPROVES ACTION AND CONVENES GENERAL
OFFICER BOARD TO REVIEW RESULTS
- CONTENT DELETION
- FACED WITH THE INABILITY OF THE CONTRACTORS TO REASONABLY
SLIP THE 1ST MANNED FLIGHT AND LIVE WITHIN TIGHT FUNDING

~~SECRET~~ DORIAN

~~SECRET~~ DORIAN

20

CONSTRAINTS ... SYSTEMS OFFICE AND CONTRACTORS MUTUALLY AGREED
TO DELETION OF ONE THIM QUALIFICATION FLIGHT ... LEAVING ONE
DEVELOPMENT QUALIFICATION FLIGHT FOR GEMINI B ... THE LABORATORY
VEHICLE STRUCTURE AND THIM ... PRIOR TO 1ST MANNED FLIGHT ...

ASSESSMENT ... ACCEPTABLE RISK ... SOME SCHEDULE RELIEF ...
NOT ENOUGH DOLLAR RELIEF

• ADDITIONAL CONTENT DELETION ... SYSTEMS OFFICE CONTRACTOR ANALYSIS

- TO GET WITHIN FUNDING GOALS ... "WE ARE GOING TO CASH IN ON SOME
OF OUR HIGH CONFIDENCE" ... REDUCE INSURANCE ... ACCEPT A DEGREE
OF TECHNICAL RISK THAT ONE YEAR AGO WOULD NOT HAVE BEEN ACCEPTABLE

• CATEGORIES OF ITEMS

• HARDWARE

- WE WILL ELIMINATE SOME OF THE TEST VEHICLES YOU SAW IN THE FLOW ...
IN SOME CASES WE WILL COMBINE TWO TEST STRUCTURES INTO ONE ... WE
WILL ELIMINATE INTERMEDIATE STEPS IN THE TEST FLOW ... WE WILL
OPTIMIZE IT TO MINIMIZE THE NUMBER OF STRUCTURES IN TEST ... THE
AMOUNT OF SUPPORT EQUIPMENT AND TEST GEAR WILL BE REDUCED ... TO
SQUEEZE OUT EVERY BUCK

- ASSESSMENT ... ACCEPTABLE RISK ... BUT ABSOLUTELY ZERO FLEXIBILITY
... NOW A DOMINO TEST FLOW

~~SECRET~~ DORIAN

~~SECRET~~ DORIAN

21

• ENGINEERING ANALYSES

- WE ARE REVIEWING AND REDUCING SIGNIFICANT PORTIONS OF ANALYSIS AND REPORTS THAT WOULD NORMALLY CONTINUE AND FOLLOW HARDWARE DESIGN THROUGH TEST AND OPERATIONS ... E.G., SYSTEM ENGINEERING, SYSTEM EFFECTIVENESS, CREW TASK ANALYSES, SPECIAL ENGINEERING STUDIES ETC.

- ASSESSMENT ACCEPTABLE SPECIFIC DELETIONS TO BE INDIVIDUALLY CONSIDERED SAVINGS WILL BE CONSIDERABLY LESS THAN HARDWARE SAVINGS

• MANAGEMENT TOOLS

- WE ARE REVIEWING AND CURTAILING A SIGNIFICANT NUMBER OF TECHNICAL MEETINGS, MANAGEMENT REPORTING FREQUENCY, AND OTHER TECHNIQUES THAT WE WOULD NORMALLY FOLLOW TO KEEP CLOSE TRACK OF PROGRAM PROGRESS

- ASSESSMENT ACCEPTABLE SPECIFICS TO BE INDIVIDUALLY CONSIDERED AGAIN CONSIDERABLY LESS SAVING THAN FROM HARDWARE DELETIONS

~~SECRET~~ DORIAN

~~SECRET~~ DORIAN

22

4TH ACTION 24 APRIL

- DIRECTOR MOL CONDUCTED AN IN DEPTH REVIEW OF THE MOL PROGRAM FY 70 ANALYSES, INDORSED THE FINDINGS AND DIRECTED THE FINDINGS BE PREPARED FOR REVIEW BY THE SECRETARY OF THE AIR FORCE AND THE MOL POLICY COMMITTEE

~~SECRET~~ DORIAN

~~SECRET~~ DORIAN

23

ADJUSTED FY 70 - 71 PROGRAM ANALYSIS

• GROUND RULES

- 5 FLIGHT PROGRAM (1 DEVELOPMENT PLUS 4 MANNED FLIGHTS)
- 1ST MANNED LAUNCH JULY 1972
- 6 MONTH CENTERS FOR REMAINING FLIGHTS
- SPECIFIC LIST OF CONTENT DELETIONS
 - NO INCREASE RISK TO MAN
 - NO COMPROMISE OF PERFORMANCE OBJECTIVES
- FY 70 FUNDING LEVEL 525 MILLION

~~SECRET~~ DORIAN

23-1

MOL PROGRAM SCHEDULE

FISCAL YEAR	FY 70	FY 71	FY 72	FY 73	FY 74	FY 75																														
CALENDAR YEAR	1970																																			
MONTH	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D

FY69 BASELINE

FY70 BASELINE
(PROPOSED)

△ T-III

△ GBQ

△

△

△

△ A

△ A

△

△

△

△

GBQ

~~SECRET~~ DORIAN

• ADJUSTED PROGRAM ANALYSIS

• FINANCIAL ASSESSMENT

	<u>FY 70</u>	<u>FY 71</u>
REQUIREMENT	540	625 - 640

• TECHNICAL ASSESSMENT

- TECHNICAL RISK HAS BEEN RECOGNIZED
- NO INCREASE RISK TO MAN
- NO COMPROMISE OF PERFORMANCE OBJECTIVES

~~SECRET~~ DORIAN

~~SECRET~~ DORIAN

FY 70 REQUIREMENTS VS. FUNDS AVAILABLE
(FOR NEW BASELINE SCHEDULE)

	<u>INITIAL BOGEY</u>	<u>CONTR REQ</u>	<u>ESTIMATED REDUCTION (DELETIONS)</u>	<u>ADJUSTED REQ</u>	<u>MR*</u>
MDAC-WD	156.0	202.9	- 38.2	164.7	
CE	109.0	109.0	- 10.0	99.0	
EK	65.0	94.0	+ .3	94.3	20.0
MDAC-ED	50.0	50.0	- 1.1	48.9	
MMC	25.0	28.0	0	28.0	1.5
ACED	6.3	7.9	0	7.9	
ACC	7.8	7.8	0	7.8	
UTC	29.0	32.0	0	32.0	2.1
OTHER	53.3	53.3	0	53.3	
MR*	23.6				-
	525.0	584.9	- 49.0	535.9	23.6
			AVAILABLE	525.0	
			DIFFERENCE	- 10.9	

~~SECRET~~ DORIAN

~~SECRET~~ DORIAN

26

FY 70 - '71 - 72 FUNDING REQUIREMENTS FOR THE NEW PLAN

	<u>FY 70</u>	<u>FY 71</u>	<u>FY 72</u>
MDAC-WD	164.7	205.0	200.2
GE	99.0	125.8	52.9
EK	94.3	80.1	61.7
MDAC-ED	48.9	76.0	87.0
MMC	28.0	35.0	29.7
AGED	7.9	8.3	7.3
AGC	7.8	9.0	3.5
UTC	32.0	22.0	17.0
OTHER	<u>53.3</u>	<u>66.6</u>	<u>56.8</u>
	535.9	627.8	516.1
PLANNED AVAILABILITY	525.0	?	?

~~SECRET~~ DORIAN



~~SECRET/DORIAN~~

26-1

INITIAL FY 71 BOGEYS

DAC	195.3
GE	86.0
EKC	74.4
MAC	59.7
MMC	35.0
ACED	9.1
AGC	8.0
UTC	19.5
OTIER	62.0
	<hr/>
	550.0

~~SECRET/DORIAN~~

~~SECRET~~ DORIAN

27

ALTERNATIVES TO THE ADJUSTED PROGRAM

- AS THE MOL PROGRAM HAS PROGRESSED DEEPER INTO HARDWARE DEVELOPMENT AND TEST ... ANY MARGIN OR FLEXIBILITY FOR MEANINGFUL OPTIONS OR ALTERNATIVES HAS DISAPPEARED
- ADDITIONAL TIME NOW BECOMES A VERY EXPENSIVE CONSIDERATION ... FURTHER EXTENSION OF THE FLIGHT DATES AND THE PERIOD OF PERFORMANCE DOES NOT RESULT IN AN INCREASE IN PRODUCTIVITY ... DOES RESULT IN INCREASING TOTAL COST TO COMPLETE AT A RATE OF 200 - 300 MILLION PER YEAR
- ONE ACTION TO REDUCE COSTS TO THE GOVERNMENT OVER THE ADJUSTED PROGRAM ... WOULD BE TO FUND MOL TO INCREASE PROGRAM MOMENTUM ... ACHIEVE EARLIER FLIGHT ... AND SHORTEN THE PERIOD OF THE PROGRAM

~~SECRET~~ DORIAN

~~SECRET~~ DORIAN

28

CONCLUSIONS

~~SECRET~~ DORIAN

~~SECRET~~-DORIAN

29

CONCLUSIONS

• TECHNICAL

- FROM HERE ON OUT THE MOL PROGRAM IS ALMOST 100% DEFINED IN EVERY TECHNICAL ASPECT
- SPECIFICATION VALUES TO MEET [REDACTED] RESOLUTION ARE NOW BEING MET OR EXCEEDED AND TEST RESULTS TO DATE GIVE EVERY EXPECTATION OF FULL PERFORMANCE ACHIEVEMENT
- NO NEW TECHNOLOGY IS REQUIRED, NOR ARE ANY ADVANCES IN FABRICATION, TESTING TECHNIQUES OR FACILITIES REQUIRED TO ACHIEVE THE PROGRAM OBJECTIVES FOR SAFETY AND PERFORMANCE ON THE 1ST MANNED FLIGHT IN MID 1972
- EVERY ITEM OF EVERY SUBSYSTEM OR COMPONENT NEEDED TO MEET SYSTEM PERFORMANCE OBJECTIVES HAS BEEN IDENTIFIED AND IS IN BEING IN VARYING STAGES FROM BREAD BOARD TO FINAL FLIGHT HARDWARE
- EVERY ELEMENT OF EVERY SCHEDULE CAN BE MET ON A HIGHLY PREDICTABLE BASIS

~~SECRET~~-DORIAN

~~SECRET~~ DORIAN

FINANCIAL

30

- MANAGEMENT HAS REPEATEDLY DEMONSTRATED THE ABILITY TO EFFECTIVELY MANAGE FUNDS AND TIGHTLY CONTROL ALLOCATIONS
- THE RATE OF PROGRESS OF THE MOL PROGRAM HAS BEEN ADJUSTED TO THE AVAILABLE FUNDING LEVEL WITHOUT COMPROMISE TO SAFETY OR SYSTEM PERFORMANCE
- THERE IS NO QUESTION THAT THE PROGRAM CAN BE EFFICIENTLY MANAGED WITHIN THE ADJUSTED PROGRAM FY 70 AND FY 71 FUNDING LEVELS OVER THE 24 MONTH PERIOD AND ACHIEVE THE PROGRESS PREDICTED
- ADJUSTED FY 70 - 71 PROGRAM
- THE ADJUSTED PROGRAM CAN BE DONE ... WITHOUT DEGRADATION TO MANNED SAFETY OR SYSTEM PERFORMANCE
- DECISIONS ON TECHNICAL CONTENT DELETION HAVE BEEN ANALYZED AND ARE ACCEPTABLE
- THE ADJUSTED PROGRAM CAN BE DONE PROVIDED THAT
- A FUNDING LEVEL OF 525 MILLION IN FY 70 WILL BE AVAILABLE
- A FIRM COMMITMENT OF 625 - 640 MILLION CAN BE MADE FOR FY 71
- WITHOUT A TWO YEAR COMMITMENT THE MOL PROGRAM WILL HAVE LITTLE BASIS ON WHICH TO DETERMINE HOW TO EFFICIENTLY ESTABLISH CURVE OF EFFORT AND THE ORDER OF BUILDUP FROM FY 70 THRU FY 71

~~SECRET~~ DORIAN

68308-69

~~SECRET~~ DORIAN

31

- WITHOUT A FIRM INDICATION OF FY 71 FUNDING ... THE 525 MILLION EFFORT IN FY 70 ... ALONE ... CAN ONLY BE UNDERTAKEN ON A 6 MONTH BASIS ... HEADING FOR ANOTHER MAJOR ADJUSTMENT IN JAN 70 AFTER MOL FY 71 FUNDING IS FINALLY FORMALIZED IN THE FALL BUDGET EFFORT AND SUBMISSION

FINAL CONSIDERATIONS

- FOUR YEARS OF INTENSIVE TECHNICAL EFFORT ... DESPITE REPEATED FUNDING ADJUSTMENTS ... HAVE BROUGHT THE HARDWARE CONFIDENTLY TO THE THRESHOLD OF INTEGRATING THE INDIVIDUAL CONTRACTORS' HARDWARE INTO INTEGRATED SYSTEM TESTING
- ACHIEVEMENT OF ALL PROGRAM OBJECTIVES ON SCHEDULE IS PREDICTABLE
- 1ST MANNED LAUNCH IS HIGHLY PREDICTABLE ... 36 MONTHS FROM TODAY
- MOL WILL PROVIDE A DRAMATIC INCREASE IN THE QUALITY AND VALUE OF SATELLITE RECONNAISSANCE
- PERFORMANCE OF THE MOL CREW WILL ESTABLISH A WEALTH OF BASIC UNDERSTANDING ON WHAT ENHANCEMENT AND FLEXIBILITY MAN CAN BRING TO MILITARY SPACE OPERATIONS ... AS AN INTEGRAL PART OF THE OPERATIONAL SYSTEM ... NOT JUST AS AN OBSERVER

~~SECRET~~ DORIAN

32

~~SECRET~~ DORIAN

- THE BASIC MOL HARDWARE CAN PROVIDE A BASIC TEST BED CAPABILITY FOR OTHER MILITARY SPACE SYSTEM DEVELOPMENT
- THE PREDICTABLE SUCCESS AND HARD CORE NATURE OF THE MOL MISSION SHOULD PLACE THE MOL PROGRAM ON AT LEAST EQUIVALENT PRIORITY TO ANY NEW SPACE GOAL CONSIDERED FOR THE NEXT DECADE

~~SECRET~~ DORIAN

33

67-80689

OPINION

- AS MUCH AS 600 - 630 MILLION DOLLARS OF ADDITIONAL COSTS HAVE BEEN INCURRED DUE SOLELY TO ENFORCED PROGRAM SLIPS
- AS MUCH AS TWO YEARS WORTH OF A SUBSTANTIAL QUANTITY OF VERY HIGH RESOLUTION PHOTOGRAPHY PERHAPS VITAL TO CURRENT USSR - CPR WEAPON SYSTEM ASSESSMENT MAY HAVE BEEN LOST DUE TO ENFORCED PROGRAM SLIPS

~~SECRET~~ DORIAN

~~TOP SECRET~~ Handle via BYEMAN
Control System

DEPARTMENT OF THE AIR FORCE
WASHINGTON 20330



OFFICE OF THE SECRETARY

RT DATA ENTERED
DATE 08/18/87
 MICROFICHE
DATE 06/14/87

May 13, 1969

BYE-68308/69
N
E

MEMORANDUM FOR THE RECORD

SUBJECT: MOL Policy Committee Meeting of 9 May 1969

The MOL Policy Committee was convened at 0930 hours in the Secretary's Conference Room. The principals in attendance were:

AIR FORCE

Dr. Robert C. Seamans, Jr.; Secretary of the Air Force

Dr. John L. McLucas; Under Secretary of the Air Force

Mr. Grant L. Hansen; Assistant Secretary of the Air Force
(Research and Development)

[Redacted] for the Assistant Secretary of the Air Force
(Financial Management)

Mr. Philip N. Whittaker; Assistant Secretary of the Air Force
(Installations and Logistics)

General James Ferguson; Director, MOL Program

General James T. Stewart; Vice Director, MOL Program

General Joseph Bleymaier; Deputy Director, MOL Program

General Marvin McNickle; Deputy Chief of Staff, Research and
Development

03

DORIAN/GAMBIT

Page 1 of 9 pages
Copy 2 of copies
SAFSL BYE 68308-69

Handle via BYEMAN
Control System

~~TOP SECRET~~



~~TOP SECRET~~

Handle via BYEMAN
Control System

OBSERVERS

Mr. I. Nevin Palley; Assistant Director (Space Technology),
DDR&E

Mr. Michael I. Yarymovych; Deputy for Requirements, Assistant
Secretary of the Air Force (Research and Development)

General Ferguson opened the meeting with a brief discussion of the history of other manned space ventures, explaining that in the mid 50's a program called BRASS BELL became the basis for later Mercury, Gemini and Apollo space flights. He mentioned that the Air Force had undertaken DYNASOAR with the objective of first flight in 1968 but terminated the program in 1963 after expending \$800 million. However, the DYNASOAR booster, the T-III, was not terminated and has now become one of the mainstays of the booster inventory.

General Ferguson observed that while MOL was announced in 1963 it was not approved until 1965 and since that time there have been three major rescheduling exercises. He stated that, in view of the present circumstances surrounding the program and the present attitudes in Washington concerning it, he had convened a Board of Air Force Officers, representing the best space management talent available, to review the program. Following the review, the group concluded that the program was ready to go but it lacked the dollars necessary to proceed efficiently. For this reason he had requested the MOL Policy Committee Meeting to review the circumstances of the program and to re-evaluate the need for military man in space. He concluded by saying "We are ready to fish or cut bait."

Dr. McLucas asked whether or not the reconnaissance mission had been used as a means for justifying MOL approval in 1965. General Bleymaier responded by pointing out that initially MOL was prohibited from looking at overhead reconnaissance as a mission and therefore had concentrated on various space experiments. It was only after the prohibition was lifted and MOL given a reconnaissance mission that the program was approved. General Ferguson observed that the Air Force had a mission in DYNASOAR but they were not allowed to pursue it. DYNASOAR

DORIAN/GAMBIT

Page 2 of 9 pages
Copy of copies
SAFSL BYE 68308-69

Handle via BYEMAN
Control System

~~TOP SECRET~~

~~TOP SECRET~~

Handle via BYEMAN
Control System

concentrated on various experiments and the program was lost. At this point General Bleymaier then began the formal portion of his presentation.

General Bleymaier began by emphasizing the fact that the MOL Program has suffered as a result of funding instability over the past three years but progress has been made. The program has reached a point of maturity where the integration of the efforts of individual contractors must be brought together into a total effort and this will require at least two years of stabilized funding support. General Bleymaier then proceeded to review MOL program objectives, MOL contractors, fund requirements of both associate and major subcontractors, and current program technical status. General Bleymaier pointed out the MOL program is totally defined, progress is being made, there are no pacing items, the technical schedule is predictable, and the technical objectives are clearly achievable. To support his contention, the key technical requirements of the program were reviewed which demonstrated all aspects of the program were meeting or exceeding specified performance requirements.

Man's role in MOL was reviewed with the conclusion that our experience to date provides high confidence that man will make a substantial contribution not only to the reconnaissance mission but to other related military tasks.

General Bleymaier then reviewed a series of hardware pictures and discussed existing hardware and contractor performance, concluding with the observation that all the pieces of the system are available and must now be tested together.

At this point, Mr. Hansen expressed concern over the amount of hardware on hand and the time lag due to schedule stretches. His concerns addressed shelf-life obsolescence and the difficulty of incorporating changes in already fabricated hardware. He was assured that this problem would be carefully studied and changes, if any, would be qualified at the component level prior to systems test.

General Bleymaier then proceeded to conduct an in-depth review of the MOL financial position. He discussed the end FY 68 and 69 position and the estimated end FY 70 position based on an FY 70 NOA of \$525 million. General Stewart pointed

DORIAN/GAMBIT

Handle via BYEMAN
Control System

~~TOP SECRET~~

Page 3 of 9 pages
Copy of copies
SAFSL BYE 68308-69

~~TOP SECRET~~

Handle via BYEMAN
Control System

out that our present position is such that if we wait to 1 July to cancel the program we will have to acquire \$130 to \$150 million of FY 70 funds to pay termination costs. He also observed that at our past and present rate of expenditures, we will expend our entire FY 70 NOA in FY 70.

General Bleymaier then reviewed the cumulative effect of MOL underfunding of the past three years and the impact of these reductions on the contractors from both a technical and managerial viewpoint. He stressed the effect of the integrated test flow and its relationship to funding requirements.

Mr. Hansen expressed concern over the technical integrity of the hardware as it relates to the extended schedule. Mr. Palley pointed out much has been done to protect hardware integrity by stressing payload work at Eastman Kodak and General Electric in preference to vehicle hardware at the other contractors.

Mr. Whittacker asked how much of a technical advance does the MOL payload represent over other photographic systems. General Stewart explained that the MOL payload is [REDACTED]

[REDACTED] Mr. Whittacker then questioned the capability of our competitors. General Stewart stated that we have no reliable technical information on their capability but estimate it to be in the 3 to 10-foot resolution area. He also stated that intelligence sources indicated the Russians photograph China as much as they do the U.S.

Mr. Whittacker then asked if there was any real threat of Soviet inspection of our satellites. The question was asked in the context of what happens to the vehicle at the end of the mission. It was explained to Mr. Whittacker that the vehicle will be deorbited and destroyed as are the unmanned reconnaissance vehicles.

General Bleymaier continued with his analysis of the FY 70 MOL situation. He reviewed the Systems Office actions

DORIAN/GAMBIT

Page 4 of 9 pages
Copy of copies
SAFSL BYE 68308-69

Handle via BYEMAN
Control System

~~TOP SECRET~~

~~TOP SECRET~~

based on an FY 70 NOA of \$525 million. He explained the directions given to the contractors which included schedule adjustments, deletion of technical items in the program, with the current ground rule that there would be no compromise in safety or system performance. He explained that the first unmanned qualification flight had been deleted from the program along with a number of other adjustments. He observed that this last program readjustment provided for acceptable risks with absolutely no further flexibility within the program structure.

General Bleymaier then acknowledged the review conducted by General Ferguson indicating that General Ferguson concurred in the changes made in the program.

General Bleymaier then identified a real requirement for \$535 million in FY 70 and \$625 million in FY 71. He stated that he felt that the program had arrived at about the irreducible minimum at those levels. He also stated that the program does not need additional time, the present stretches are costing between \$200 and \$300 million a year. The total price could be reduced if the program was funded at a higher level to increase the momentum and shorten the period of performance. In his concluding remarks, General Bleymaier reiterated that the program is almost completely defined, test results to date have met or exceeded expectations, no technical or facility requirements stand in the way of the first manned launch in mid 72 and every item of equipment needed to meet system objectives is in some state of fabrication. He asked for a firm commitment to a funding level of \$525 million in FY 70 and \$625 million in FY 71 to insure the essential program stability.

General Ferguson called attention to MOL management actions: that since the inception of the program he and Secretary Flax conducted monthly reviews of the program and that he met twice a year with the top representatives of each of the contractors. He said that General Bleymaier had just completed meeting with these top level people and in his opinion he had never seen a more tightly managed program. Mr. Whittacker asked General Bleymaier how many Aerospace people worked on

DORIAN/GAMBIT

Page 5 of 9 pages
Copy of copies
SAFSL BYE 68308-69

Handle via BYEMAN
Control System

~~TOP SECRET~~

~~TOP SECRET~~

Handle via BYEMAN
Control System

the program. General Bleymaier responded by saying 250 were currently supporting MOL and he planned to reduce this by approximately 40 next year. He also stated that Aerospace had made a very important contribution to the program. General Bleymaier went on to say that he did not know of any program that is as well documented as the MOL. He stated that every word and every document had been negotiated and that the MOL Systems Office knows precisely what the program contains and how much its going to cost.

Mr. Hansen stated that Aerospace people had complained to him that they had not been able to do everything they would like to do in terms of technical detail in respect to MOL. General Bleymaier stated that he did not feel it was necessary for the government and Aerospace to do the very detailed systems engineering that has been done in the past. It is his opinion that industry has learned a great deal over the last several years and this coupled with fixed price incentive type contracts does not require the government to go to such a great depth of detail in the systems engineering area.

Dr. McLucas made the observation that at the end of next year we will have over half the money necessary for MOL invested in the program. At the end of this year only about 1/3 of the investment will have been made. This is bad timing for the program because people think they can get a lot out of it if the program is cancelled.

██████████ made the observation that he doesn't think anyone would give the program a firm commitment for \$625 million for FY 71 in the present environment. He observed that we had budget objectives of over \$600 million for a number of years but the program had never made it. He suggested that one way to get the total dollars the program needs is to split the requirements between two appropriations, i.e., RDT&E and production. He further stated that it would be necessary to ask the Secretary of Defense for a waiver of the full funding provision in the procurement appropriation.

DORIAN/GAMBIT

Page 6 of 9 pages
Copy of copies
SAFSL BYE 68308-69

Handle via BYEMAN
Control System

~~TOP SECRET~~

~~TOP SECRET~~

Handle via BYEMAN
Control System

Secretary Seamans stated that he wanted a copy of all the charts for his discussions with the President on MOL. He stated that the program should not be looked at as only a reconnaissance system but should be considered as part of the total national space program. He stated that we must have enough of a space program in the Department of Defense to be able to take advantage of the new technologies coming out of NASA and the ability to respond to foreign threats. He stated we must show that man has a real job to do in the system. He feels that people do not understand this well. He stated that no unmanned system has the broad vision capability of MOL, the capability for cloud avoidance, and the capability to acquire real time intelligence of high value.

A brief discussion took place between Dr. Seamans, General Ferguson and General Stewart on data return. Dr. Seamans indicated that it would be useful to have an intermediate data return capability prior to mission completion. General Stewart pointed out the technical intelligence products of MOL will probably not have great short term urgency but will probably better lend themselves to long term analysis. He further pointed out that the astronauts can identify and report target data on almost a real-time basis. Further, the astronaut using the alternate camera back, can photograph and analyze pictures on-board for oral reporting purposes. Dr. Seamans said he felt he could speak with more knowledge on just what the astronauts could do if he could have an opportunity to review the simulator at G. E.

Dr. McLucas stated that in his mind there is a question as to how much better it is to have a man looking ahead of the vehicle and picking out interesting targets instead of pre-programming an unmanned vehicle. He stated that this question also relates to the ability of the man to make choices between alternate targets. General Ferguson pointed to present Russian manned and unmanned space experiments including crew exchange and the FOBs. He stated that he felt that the administration needs something of a manned military nature.

It was pointed out to Dr. Seamans that MOL has a capability to do [REDACTED] General Stewart explained that

DORIAN/GAMBIT

Handle via BYEMAN
Control System

Page 7 of 9 pages
Copy of copies
SAFSL BYE 68308-69

~~TOP SECRET~~

~~TOP SECRET~~

in 30 days MOL [REDACTED]

[REDACTED] Dr. Seamans requested a copy of the [REDACTED] report. Dr. Seamans asked if during these first four flights MOL will have this capability and he was answered affirmatively. He further asked if the CIA had been advised. General Stewart pointed out that we had advised USIB but they seemed only mildly interested.

A brief discussion then followed on the astronaut's use of the Bi-mat processor.

Dr. Seamans then discussed his needs for materials on MOL that he could use in a discussion with the President. Later in a private session with Dr. Seamans, General Stewart identified specific materials which Dr. Seamans might desire for his discussion with the President.

Dr. Seamans stated that he felt that there would be no point in discussing budget details with the President but that his first job was to save the program. He observed that when he took his present job he said, rather than cut MOL funding, the funds should be raised.

[REDACTED] observed that the Bureau of the Budget issue is that when G gets down to [REDACTED] ground resolution the improvement to [REDACTED] resolution will not be worth the cost of MOL. He said that the BOB has not considered one other factor of the impact of cancellation of MOL and that would be the increase in overhead on the other reconnaissance programs due to the loss of business by MOL contractors.

Dr. Seamans concluded the meeting by saying he would like to get to the President some feeling for the number of people involved in program cancellation and the distribution of these people around the country. There was no summary or conclusions at the end of the discussion period and no specific concurrence or lack of concurrence with the proposed five shot program or adjusted flight schedule. (Later discussion with Dr. Seamans indicated acceptance of the five flight program plus a space T-IIIM).

DORIAN/GAMBIT

Page 8 of 9 pages
Copy of copies
SAFSL BYE 68308-69

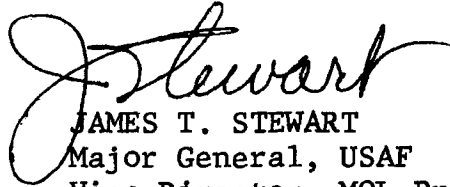
Handle via BYEMAN
Control System

~~TOP SECRET~~

~~TOP SECRET~~

Handle via BYEMAN
Control System

Copies of the briefing charts are available in SAFSLP.



JAMES T. STEWART
Major General, USAF
Vice Director, MOL Program

DORIAN/GAMBIT

Page 9 of 9 pages
Copy of copies
SAFSL BYE 68308-69

Handle via BYEMAN
Control System

~~TOP SECRET~~