

R. Larson

MIT Management Development Plan Meeting #4

7 November 1967

1. R. Ragan reported on a presentation given to members of the Main Institute Staff. This presentation mainly summarized the budgets, projects, schedules and problems concerning the Apollo effort at MIT/IL.
2. A LM DAP review meeting with NASA is scheduled for 11/8/67. At the conclusion of the DAP review the MIT/IL point of responsibility will change from G. Cherry to W. Widnall except for the completion of the writing of Chapter III of the GSOP which will be done under G. Cherry's direction.
3. MIT/IL is still scheduled to meet with C. Kraft of NASA/MSC on either November 14th or 21st. The purpose of this meeting is for MIT/IL to present to NASA its Master Development Plan and detailed Development Plans for each of the required programs. Every attempt should be made to prepare the required information so that the meeting can be held on the 14th and not postponed until the 21st.
4. Priorities have been set by Dr. Draper to ensure timely moving of in-house facilities thus providing the required additional space for the software development groups.
5. COLOSSUS
The Preliminary Colossus Development Plan dated 11/2/67 was reviewed by F. Martin. The critical paths that have been identified are the P-20s, TLI and Engineering Verification Data from 23 A.

This development plan presented two (2) approaches that might be taken to provide NASA with the required programs to meet their schedules.

- A. One approach would be to deliver Colossus with the total mission capabilities.
- B. The second approach would be to deliver an earth orbital program containing all the features of the total capability except that certain functions have not been thoroughly tested before release. Following an earth orbital program release, continued lunar testing would precede a second release.

The various man loadings and delivery schedules of the above approaches were discussed in context with the NASA need dates. The conclusion reached was that the Development Plan for the November 14th meeting at NASA should be prepared for the total capability program and that extrapolations or deltas be prepared from this baseline for other approaches to Colossus development. The actual decision as to which method should be adopted has to be made by mid January or during level 3 testing.

6. LUMINARY

The following development schedule was presented based upon the NASA need date and the schedule analysis prepared to date internally at MIT/IL.

	<u>Req.</u>	<u>Predicted</u>
GSOP Chapter IV (Computer Printout)	12/2/67	12/2/67-2/9/67
GSOP Chapter V	12/2/67	12/11/67
Level III Testing Complete	2/2/68	2/22/68
Level IV Testing Complete (Note 1)	6/21/68	7/12/68
Level IV Testing Complete (Note 2)	8/21/68	9/11/68

Note #1 - The program FACI on this date would be a Luminary program less the extensive testing of programs like P62, 64, 65, 70, 71, 57, 66 and 67.

Note #2 - The program FACI on this date would be a total Luminary program with all phases tested.

The questions of facility overloads (Hybrid and Digital) and man-power availability for simultaneous Colossus and Sundance development was discussed and it will be necessary to evaluate this impact for the Master Development Plan and the individual program Development Plans for the Nov. 14th meeting. The specific problem of man loading the Alignment Programs based on the expectation of receiving a PCR from NASA was discussed. E. Copps is to examine this problem area to see what can be done to relieve the situation.

7. SUNDANCE

The necessity to get the weekly Level III test reports back from the programmers was stressed.

It was also stressed that everyone should respect the organization charts thus going through the chain of command for contacts between groups.

Problems in program development should be presented to this meeting as early as possible so that corrective action can be taken.

A review of the Level III testing status was given for Sundance. As of this reporting the end date for Level III testing has not changed.

The problem of Computer turn around was again mentioned. Further investigation into the exact cause is necessary before a resolution can be made.

The question as to whether Chapter III or V of the GSOP should define the interfaces of the DAP was discussed. The personnel writing Chapter III and V should work very closely in this area to assure that all interfacing data is covered.

It was suggested that a list of elements or subroutines for Sundance should be prepared. This list should then be reviewed to assure that all the elements are properly covered for testing and the required documentation.

8. SUNDISK

Program Release is still scheduled for November 15, 1967. Two problems still remain that may influence this data are:

- A. There is an alignment problem that exists that will require a major program change or the design of a work around procedure. Group 23 B is requesting support from 23 S and 23 D to resolve this problem.
- B. The other problem is in the telemetry which is relatively minor and can be corrected by a program change.

The present planning is that after program release N. Barnet and 3 new personnel will be assigned to Sundisk. This force will not probably be enough to completely handle post release action so that analytical and system support will be required from 23 A and 23 S personnel.

9. GSOP

GSOP Chapter V of Sundance was reviewed and the comments given to 23 A. 23 A will iron out the comments which should be completed by 11/10/67. The section will then go to the printers next week.

23 S should review these comments and corrections with 23 A for any impact on Chapter IV. The changes being made in Sundance Chapter V will be incorporated into Colossus and Luminary if applicable. In house preliminary copies of Chapter V for Colossus and Luminary should be available about 11/20/67.

The rework of Chapter V of Sundisk should be available this week. This is not a total rewrite.

10. 23 A Management Report

23 A is recruiting new personnel to assist in the preparation of Level IV test plans.

Mission Simulations are being run for Rendezvous, Lunar Landing and Cis-Lunar Navigation.

Information received from personal contacts with NASA/MSC indicates that the lunar landing may change because of the LM weight. This change would impact Level IV testing at MIT.

A memo describing the results of the Pussy Cat meeting was published by N. Sears. MDRBs covering these changes will be issued.

A meeting is scheduled for November 14 at MSC to discuss the Lunar Landing. MIT has reviewed the lunar landing and sent NASA/MSC in July a summary of problems that exist. Some corrective action has been taken but some still remains to be resolved. DPS is one of the large problems remaining.

K. Cox, the NASA Analytical Co-ordinator, will be at MIT/IL on Thursday 11/9/67 to review the analytical tasks being performed by MIT/IL.

11. General

A suggestion was made to expand the Design Review Meetings to more than 23 B personnel and problems. Groups' 23 A, 23 S, etc., should participate so that mutual understanding of program design can be accomplished. (i. e. DAP interfacing with Steering).

J. Vittek will provide the data reduction services for post-flight analysis of AS-501.

W. Widnall questioned the availability and condition of flight data for inhouse analysis of performance. It was suggested that a copy of the Master Telemetry list be obtained and that any additional information required be obtained through J. Fleming.

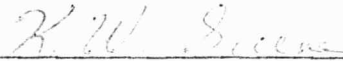
12. 23 D Management Report

23D did not receive copies of Sundance Chapter V for review. 23 A will provide two (2) copies for review purposes.

Two navigators from CSM 101 will be at MIT/IL the week of December 11 for training.

MIT has received a request from NASA to provide personnel to use their simulators, the purpose being to compare facilities and to evaluate simulated conditions.

K. Cox of NASA is to discuss time lines etc., for Lunar Orbital Land Mark Tracking in lower orbits with 23D on Thursday 11/9/67.



K. W. Greene

KWG/km

cc: (Attendees listed on next page)

L. Larson	G. Levine
R. Millard	J. Kernan
J. Dahlen	R. Morth
M. Johnston	J. Saponaro
R. Scholten	C. Schulenberg
P. Peck	M. Hamilton
N. Sears	P. Engle
J. Sutherland	W. Kupfer
J. Vittek	K. Greene
R. Larson	P. Felleman
J. Henize	

ATTENDEES

R. Ragan

D. Hoag

R. Wieser

R. Battin

W. Marscher

K. Greene

N. Sears

G. Cherry

J. Nevins

E. Copps

W. Widnall

J. Shillingford