

TO: Col. C. H. Terhune
SUBJ: STL Responsibilities
in the 117L Program

GM01-630
Page 2
May 13, 1958

- e. Engineering liaison directly with Convair and Douglas as required to identify and specify to AFBMD changes needed in the boosters to satisfy the Lockheed system engineering requirements, to work out any interface problems on those missiles allocated to the 117L program, and to identify and specify to AFBMD all GSE and facility requirements for launching of 117L vehicles.
- f. Technical test direction for the flight testing of all 117L vehicles, both at AFMTC and Cooke Air Force Base, using Convair and Douglas as test conductors for the booster stages.
- g. Checkout and operation of the second stage for flight testing.

It is my understanding that STL has the following responsibilities in the 117L program:

- A. Staff assistance to AFBMD, upon specific request, to assist in the allocation and scheduling of standard unmodified boosters for the 117L program.
- B. Staff assistance to AFBMD, upon specific request, to assist in evaluating certain special technical problems in the 117L program.
- C. System engineering for the standard booster as delivered to the Air Force for the Thor and Atlas weapon system programs, not including 117L modifications.
- D. Preparation of guidance equations for the Atlas ground guidance stations used for 117L launchings. (This part of the Atlas system is treated as a special case and differently from the Atlas missiles because, as fixed ground equipment, it must remain interchangeable for both standard Atlas and 117L launchings.)

It is my understanding that STL does not have any of the following responsibilities (except insofar as specific requests for staff assistance to AFBMD under Items A and B above overlap the items listed below):

1. Any system engineering responsibility for the two-stage flight vehicles.

2. Any responsibility for the identification and/or specification of the modifications to the booster required for 117L purposes.
3. Any responsibility for assisting AFBMD in contractually accepting the boosters allocated to the 117L program after the Lockheed-specified modifications have been made to the boosters.
4. Any responsibility for the technical test direction of 117L launchings, either at AFMTC or at Cooke Air Force Base.
5. Any responsibility for the specification and/or development of proper launching facilities for 117L vehicles at either AFMTC or Cooke Air Force Base.
6. Any responsibility for diagnosis of flight failures of 117L vehicles or analysis of 117L flight test data.

I would like to discuss the role of STL in the 117L program with you if the responsibilities outlined above for STL do not represent a mutual AFBMD/STL understanding.

LGD:RFM:dm

~~Leslie G. Dahn~~

DEC 7 1956

WDTR

SUBJECT: Distribution of Reports for WS 117L

TO: Ramo-Wooldridge Corporation.
Attn: Mr. F. A. Ford

1. The purpose of this letter is to formalize the report handling procedure in order to effect a minimum transmittal time. WDD DOI 11-7 will be adhered to. *Neely 1*

2. Official reports, memoranda and/or information generated within and/or for the Ramo-Wooldridge Corporation WS 117L Group will be distributed on a WED/R-W "A Priori" distribution list. It shall be required that prior to any reproduction of WS 117L information as defined herein, coordination will be effected with WDSIT and WDTR. It is further requested that the "A Priori" distribution list become part of the document reproduced. All reproduced copies of WS 117L information will be submitted to WDSIT. Those documents as specified in the distribution list for R-W will be sent to R-W by WDSIT "en bloc." Distribution of the remaining documents will be made by WDSIT as approved by WDTR. This procedure does not apply to R-W internal notes or memoranda, unless accompanied by an official letter of transmittal signed by someone who can certify that the information represents the Corporation's views.

3. Inclosure 1 includes the distribution required by WDTR. A standard distribution list for appropriate personnel within R-W who will receive all such reports, should be supplied to WDSIT through WDTR for approval.

4. Reports, memoranda, and/or information from other Air Force contractors, but deemed applicable and of use to WS 117L by R-W shall be handled in the following manner:

a. Send a request to WDSIT requesting that a given report (defined in sufficient detail in the request) be sent to Lockheed Aircraft Corporation, Missile Systems Division.

b. WDSIT will get the required number of copies of the document and prepare for distribution to Lockheed.

c. WDSIT will coordinate with WDTR for approval prior to transmission.

5. Three (3) copies of documents referred to in paragraph 4 will be sent to Lockheed Aircraft Corporation, Missile Systems Division, Attn: Mr. Robert Salter, P.O. Box 504, Sunnyvale, California

SIGNED

1 Incl:
Distribution List
of R-W Reports
required by MTR

FREDERIC C. E. ODER
Lt. Colonel, USAF
Assistant for WS 117L
Technical Operations

WDT

13 November 1957

MEMORANDUM TO DR. DUNN - STL

SUBJECT: Space Flight Program

1. During the past week it has become increasingly apparent that a more detailed definition of an astronautics program for the Air Force is needed to back up our initial work in this area for the Yates Board, the AFDAP Study, and the 117L Program. It is therefore requested that Space Technology Laboratories of R-W prepare such a development program to cover ten to fifteen years in the future.

2. It is expected that such a program will provide stimulus for many detailed R&D projects in the future and will outline the course of development in future weapon systems which should be followed in the Air Force. A first draft of this work should be ready for inclusion in the 2 December briefing to Hq ARDC - this to be improved upon for the mid-December briefing to the Air Force Scientific Advisory Committee.

3. Subsequent to these two presentations it is believed essential to finalize the work in this area at the earliest possible time to provide necessary guidance to Hq USAF.

SIGNED

Cys to Col Ely
Lt Col Bogert

CHARLES H. TERRINE, JR.
Colonel, USAF
Deputy Commander,
Weapon Systems

Briefing on 16th to BAS
on mgt philo re STL and
control over Lockheed

NOTES ON WS-117L MANAGEMENT

8 April 1958

1. Steering Task Group

A reasonably complete treatment of this subject is contained in the attached memorandum. However, it is worth repeating that a Steering Task Group is no substitute for detailed, daily, line direction of a program. It is a device for insuring that the top managers involved meet on a regular basis so as to insure current major problems are understood, recognized and under attack at the proper levels.

2. STL Role

The extent to which STL participates in the program is to some extent dependent upon the action following Mr. Douglas' current efforts with the principal officers of the corporations concerned. However, benefit can be derived from interim arrangements which can be implemented immediately. In essence these would be to create within STL a group, presumably small, attached directly to the WDT Program Office for the purpose of performing technical analyses and staff assistance. It would not seem to be politic to delegate to this group any "technical direction" powers of the kind normally exercised by the B-W contingents in other programs. On the other hand, there seems no reason why they should not be engaged in "systems engineering".

3. Program Records

In the past the program records, particularly schedules, have been notably skimpy - at least insofar as the operation of the Program Control Room and the related procedures are concerned. Inquiry reveals that a major re-work of Program Control Room data is commencing and that current plans visualize the conversion of the ballistic missile program into the new format in advance of undertaking WS-117L data. It might be wise to reverse the order of these undertakings so that the -117L program becomes the first to be recorded under the new scheme. Particularly significant is the fact that the new program records will indicate in milestone-by-milestone fashion of the responsible persons or office. This is a very desirable feature.

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[REDACTED]

4. Lockheed Monthly Meetings

In view of the fact that the WS-117L program as a whole will require major inputs from activities and sources other than Lockheed, it might be worthwhile to consider moving the location of the monthly meetings now held at Palo Alto to Inglewood where there is a possibility of greater participation by individuals in the complex.

5. TROR/-117L Program

The reason for withholding R-W participation as full scale systems engineering and technical director participation in the program has been their involvement in the data handling and infra-red systems. These systems are not involved in the TROR/-117L program. The possibility, therefore, exists that the TROR/-117L can be sufficiently divorced from the balance of the program so that R-W might play a more potent part.

6. Utilization of AMC

Private inquiry reveals that admirable cooperation and mutual support exists between the Program Office and the AMC contingent therein. Since the local management complex must handle through Lockheed many of the things currently handled direct with associate contractors in other programs, it is important that this relationship be continued and that the full capabilities of the AMC be utilized so that the performance of subordinate tiers of sub-contractors and suppliers can be closely monitored and stimulated.

1 Incl
Cy Memo for Gen Schriever,
12 Mar 58, subj: Summary of
Findings of WS-117L Mgmt Proj
w/1 Incl

[REDACTED]

WDDG

12 March 1958

MEMORANDUM FOR GENERAL SCHEFVER

SUBJECT: Summary of Findings of WS-117L Management Project

1. The findings which follow are based upon a visit to Admiral Raborn's activity, reading of the development plan and other current -117L documents, and general knowledge of the program content through past association. Since the WS-117L Program Office is fully engaged at this time in a crash effort connected with the new development plan and fund requirements, it has not yet been possible to explore in detail either current procedures or possible future alterations in management procedures.

2. At the outset it is worth comparing the posture of the Atlas program when it was accelerated in 1954 with the current posture of the WS-117L program. In 1954 the ICBM program (Atlas only at that time) enjoyed the full time attention of a number of senior officers and a growing number of junior officers and civilians as well as substantial assistance from the R/W Corporation. In the main the specific help rendered by outside individuals such as Mr. Gardner, General Fower, the Scientific Advisory Committee, etc., was positive and more or less continuous. The situation is considerably different relative to the WS-117L program today. It may be that it has played second fiddle to other local programs so long that it will be difficult to get a proper degree of acceleration and attention. In any event the amount of attention devoted and desirable by senior individuals to the program will have a major influence in its success or lack thereof - both schedule-wise and qualitatively. I take such matters seriously because I personally believe that serviceable satellites broadly utilized will have a much more constructive and powerful influence on all aspects of world affairs than either ballistic missile or man-in-space programs. The U.S. should lead in this and the Air Force must be its instrument.

3. Application of Rularis Management Techniques.

a. It seems an obvious fact that for WS-117L we cannot at this time gather into our hands in the local complex the same kind of systems management and technical direction as has existed in the missile programs since activities like Rome ADC and Lockheed sub-contractors cannot be directly controlled by a line arrangement using R/W. Therefore it might be well to adopt a technique applied successfully by Admiral Raborn's people. This is the specific

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[REDACTED]

Identification of responsible offices or people down to a significantly lower level of action and milestones than we do currently. In essence this would elaborate the current AFM&D technique of assigning responsibilities through office functional descriptions and through signature blocks on large groups of milestones assembled on charts.

b. There would be a net benefit in adopting at least as an interim measure Admiral Raborn's technique of creating a "Steering Task Group" chairmanned by an AFM&D individual and having representation from the interested contractors, military elements and others who contribute to the program.

(1) Admiral Raborn's Steering Task Group is composed as follows:

Special Projects Office SP 20 (Chairman)	Capt. L. Smith	Represents Admiral Raborn
Lockheed Missile System Division	Mr. W. Hawkins	- -
Bureau of Ships (Code 420)	Capt. E. Arestsen	Chief of Submarine Design
Chief of Naval Operations (OP-515)	Cdr. P. H. Backus	Chief of Ballistic Missile Activities under Admiral Clark
Chief of Naval Operations (OP-311)	Capt. F. W. Walker	Chief of Submarine Warfare Branch under the CNO
Massachusetts Institute of Technology	Dr. C. S. Draper	- -
Atomic Energy Commission (UCRL)	Dr. H. Brown	- -
Naval Ordnance Laboratory	Dr. P. M. Syc	- -
General Electric	Mr. H. C. Berendsen	- -
Aerojet-General Corporation	Mr. B. Gackler	- -
Westinghouse Electric Corporation	Dr. G. H. Nechlin	- -
Sperry Gyroscope Co.	Dr. W. L. Barrow	- -

[REDACTED]

(2) A comparable set of titles for the WS-117L program might be as follows:

Chairman

Representative General Schriever

Lockheed representative

Convair representative

Douglas representative

Ramo-Wouldridge representative on
the data processing system.

Rome ADC representative

Cambridge Research Center
representative

(1)

Whoever can represent the
communications system involved

Intelligence representative

Meteorological representative.

It should be noted that the representative on Admiral Raborn's committee is fairly high level. The efficacy of such an arrangement depends upon this fact. We discussed the operation of the Group with Admiral Raborn and with his people. His working elements viewed the Group as a body of people who assembled every six weeks or so to solve important problems. Admiral Raborn seemed to view the same Group as a method for keeping the various agencies participating in his program happy through the device of frequent cooperative meetings at which they discover or discuss mutual problems. Admiral Raborn has a "board of directors" composed of himself and three or four key staff members who meet together when required to decide important issues. It is true that the situation with which Admiral Raborn has to deal in the Navy is different from the usual Air Force situation in that the bureaus are more tradition-bound and jealous of their prerogatives than comparable Air Force institutions. So far the Steering Task Group, plus Admiral Raborn's level of assignment; plus the priority of the program; plus the fact that many Naval personnel now see the end of surface warships has succeeded in keeping all the essential elements of the Polaris program pulling essentially in the same direction.

[REDACTED]

[REDACTED]

3. While not a management technique per se, there is a point of view relative to management held by Admiral Raborn and well propagated through his staff which is worth attention. It is represented by the attached diagram and its description. The "centers of authority" of concern to the Polaris effort are such institutions as BuShips, the AEC, Navy contractors, BuBuds and Books, BuSupply and Accounts, etc. When asked how they would draw their own set of circles relative to such institutions, their reply was that they had the authority to direct any activity in the Navy within the scope of their project.

4. The Polaris program has not yet met with very many of the problems attending the onset of testing nor those attending the commencement of operational use. However, participation by the user elements of the Navy as well as logistic and training elements seems to have been heavy and continuous. They are represented on the Steering Task Group. Many of Admiral Raborn's local staff have been drawn from such activities. A substantial Raborn office related to the Bureau of Personnel is in the process of being created. I mention this for the following reason. While SAC/MIKE has done some preliminary planning relative to the concepts of employment, it is not entirely clear that the sundane, somewhat unattractive but nevertheless difficult problems of establishing and operating field activities are being identified and the initial implementing actions put underway soon enough to meet the requirements of the accelerated program. This may be an unjust remark since I've really not yet been able to delve particularly deep into these aspects. Admiral Raborn's Steering Task Group plus the backgrounds of the individuals selected for his activity seems to have given him an early start on these problems. On the other hand, both the Polaris office and the bureaus are dealing with relatively familiar objects while the NS-117L field operations have no particular precedents.

5. In considering the composition of a possible AHS "Steering Task Group" user-representation is worth some thought. Current planning is that the Strategic Air Command will operate the system. There are some pitfalls connected with this course of action in that SAC in no instance that I can remember has ever furnished a service to anybody except themselves. The AHS system in its daily operation is essentially a service activity which will furnish many kinds of data to many kinds of consumers - most of whom are not in SAC. It is conceded that SAC can develop the AHS operation so that it will furnish very fine strategic reconnaissance information to Headquarters SAC. I question whether that command is psychologically adapted to furnishing an equal quality of service to other possible consumers. For example,

[REDACTED]

[REDACTED]

communication usages and meteorological usages might be heavily underplayed. In fact these kinds of usages might be the very ones that we would want to accent as a matter of national policy as opposed to strictly secret intelligence uses aimed at a war-like purpose. The reason for bringing this up is that user representation, if possible, should cover all probable aspects of WS-117L utilization.

6. Recommendations.

a. That the Steering Task Group approach with technical, logistic and user representation be strongly considered for application to the WS-117L program provided that high enough level of representation is possible. This may be especially important from a "system engineering and technical direction" point of view since we may not be able to solve the R/W-STL problem for some months.

b. That specific assignment of responsibilities be made at somewhat lower level of action in the WS-117L program as compared to our ballistic missile program. This would compensate for the fact that the current situation prevents us from having as firm a control of the ARS program as we have of the ballistic missile program.

SIGNED

1 Incl
Dynamics of SP
Mgmt Staff Work

WILLIAM A. SHEPPARD
Colonel, USAF
Assistant for ICG

WDIO

4 February 1958

MEMORANDUM FOR GENERAL RITLAND

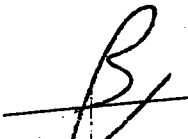
SUBJECT: Exclusion of Hardware Clause in the R-W Contract

1. Reference our conversation this morning, the "Exclusion of Hardware" clause in the current R-W contract reads as follows:

"The Contractor agrees that due to its unique position in the administration and supervision of the Program contemplated hereunder, the Ramo-Wouldridge Corporation will not engage in the physical development or production of any components for the use in the ICBM and IRBM contemplated herein, except with the express approval of the Assistant Secretary of the Air Force (Material) or his authorized representative."

These words are first found in a letter from General Schriever to ARDC in October 1954 and were compiled as a result of the 3 September meeting in Mr. Lewis' office. They were placed in the R-W contract in Supplement #4, dated 16 September 1955.

2. Incidental to the hardware exclusion problem, Max Golden is giving BMO a hard time on the removal of ARS from this exclusion clause (ARS got in by accident about 18 months ago). You mentioned wanting to increase the scope of effort on 117L to include systems engineering. The timing would seem inappropriate to add the words "systems engineering" in conjunction with 117L. It seems reasonable at this point that R-W will get the contract from Rome for the infra-red job. I am sure that Max Golden will interpret this as hardware production and would then consider that giving R-W systems engineering on 117L would create a conflict of interests. Personally, I don't think that such a conflict would exist in reality; however, I am bringing this matter to your attention only so that you and General Schriever can be made aware of the fact that we should probably clean up the present problem with Max Golden before starting a potential second one.


J. D. BOGERT
Lt Colonel, USAF
Chief, Programs & Procedures Office
Weapon Systems