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[redacted]

13 July 1999

MEMORANDUM FOR: Deputy Director (Plans)

THROUGH: Acting Chief, BPD

SUBJECT: Meeting of July 9 at BMD in Los Angeles

1. Attached is a report of the 9 July meeting at BMD which I attended.

2. Since then I understand that the following agreements have been reached between BMD, Lockheed and [redacted]

a. Eccentricity will be .05. I do not have knowledge of [redacted] confidence in success with the 120 mile altitude and this eccentricity, but apparently [redacted] has gone along with Lockheed on this figure.

b. Fuel mixture ratios are expected to go down to 1.85 to 1.90 during extreme flight conditions. Engine tests in this range have been satisfactory; however, please note that roughness developed at 1.80 to 1.85 and that the engine blew up at 1.70.

[redacted]
Chief, Development Branch, BPD

Attachment:
Memo for Record

Distribution:
[redacted]

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Att to [redacted]

13 July 1959

MEMORANDUM FOR THE RECORD

SUBJECT: The Meeting of July 9 at BMD in Los Angeles

Attendance: BMD - Cols. [redacted] Battle, Mathieson and [redacted]
Maj. Bassett, Capt. Johnson
AMPA - [redacted] (substituting) for [redacted]
LOCKHEED: [redacted] Plumber and [redacted]
[redacted] and at least 5 others.

In addition there were some 10 to 15 unidentified individuals. I was told that the attendance was only partly cleared for CORONA.

1. The purpose of the meeting was to consider and, if possible, to reaffirm in the light of [redacted] investigation the decisions reached at the earlier progress review meeting to conduct Flight VI on a "medium risk" basis using RJ-1 fuel and with some weight reduction in the system.

2. Lockheed, through [redacted] and Messrs. O'Brien and Plumber, indicated a 90% plus confidence factor (aside from reliability) for Flight VI assuming:

a.	Altitude 120 miles	
b.	Eccentricity of .05	
c.	Use of RJ-1 fuel (equivalent weight reduction)	60 lbs.
d.	170° azimuth " " "	20 lbs.
e.	Reductions in weight (see attachment)	63 lbs.
	TOTAL	143 lbs.

3. [redacted] in commenting on the Lockheed recommendations, indicated that the last flight was 300 ft per second less velocity than the Lockheed figure but agreed that the difficulties in interpreting the scanty trunk data could account for the difference in the two figures.

4. [redacted] had not had the opportunity to consult with Lockheed prior to the meeting and had therefore assumed the previous eccentricity of

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.ss in preparing their recommendations for Flight VI. On the same assumptions otherwise (RJ-1 fuel, 170° azimuth, 63 lbs. weight reduction) and further assuming a 5 day life, [redacted] centistokes factor was less than 40%. Their recommendation was to seek higher altitude from the system, retain the lower eccentricity, and to seek improved performance in both the Thor and the Bell Rocket in certain specified areas.

5. [redacted] also emphasized strongly the need for RJ-1 engine testing in the extreme ranges of mixture ratios to be encountered during the flight.

6. As the meeting closed there appeared to be agreement between the parties that:

a. Lockheed would increase its weight reduction another 14 lbs. This would be derived from eliminating H-2 bottle and certain grid mountings.

b. [redacted] would run another set of computations on the assumption of ± .05 eccentricity and come up with a new estimate of probable success.

c. The fuel mixture ratio question raised by [redacted] would be investigated.

d. When the results of 6.b. and 6.c. were known BMD, [redacted] and Lockheed would seek agreement prior to the July 14 meeting in Washington.

e. On account of the new range safety computations required by the changed azimuth, the next firing date must be put over to July 26th.

[redacted]

LOCKHEED PROPOSAL - 90% Probability

			LF1	RF1
Fuel to be used			26180	26180
Injection Velocity			180	180
Altitude			.05	.05
Eccentricity			1753	1692
Empty wgt orbit vehicle			62.8	105.5
Weight reduction				
Trim structure		3.0		
Inverter heat sinks		3.0		
Slosh balls		12.0		
Acquisition beacon battery		9.0		
Recovery body				
Film	10			
Ballast	5			
Die	2			
Cooling	1.2			
Torque motor	1.1	19.3		
Solar reset of timer		5.0		
18.5" titanium sphere		7.0		
Ground plane		1.0		
Turbine exhaust heat shield		1.5		
[illegible] expansion chamber		0.5		
[illegible] nozzle		1.5	62.8	62.8
RR/S Revisions				10.0
Paint				2.0
Hydraulic mounting plate				2.0
Environmental measurements				3.0
Longitudinal acceleration pressure measurements				1.2
Inside vehicle				1.5
Reduce gauge				15.6
Move destruct system to new location				8.0
				105.5

Assumption is higher injection velocity rather than higher altitude.