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11 April 1961

MEMORANDUM FOR: Brigadier General Chester V. Clifton
Military Aide to the President

SUBJECT: Summary of ARGON Mission

1. ARGON Mission 9016A was successfully launched at 1921Z, 8 April 1961. The launch was normal in all areas and the new closed loop Bell Telephone Laboratory (BTL) first stage guidance system worked successfully.

2. The vehicle was acquired at the [redacted] Tracking Station 1 1/2 hours later and the following statistics were compiled and compared with nominal data:

	Nominal	Actual
Period	94.4 Min.	94.1 Min.
Perigee	190 SM	190 SM
Apogee	435 SM	415 SM
Eccentricity	.0272	.026
Inclination Angle	81.71	82

In addition, it was noted that the film was transporting normally, the clock was operating normally, and the camera was operating normally in all areas. In addition, the vehicle stabilization and control gas consumption was normal.

3. The above conditions remained unchanged until Pass 10, 9 April, 1100Z. At that time, it was determined that the vehicle had depleted its entire control gas supply sometime between the time that it was acquired by [redacted] Tracking Station on Pass 9 and when it was acquired by [redacted] Tracking Station on Pass 10, approximately 1 1/2 hours later.

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4. With its control gas gone, stabilization control was lost. The worst situation that could come about in such an event is for the vehicle to go into a random tumbling motion. All control and prediction of an impact area at recovery time is impossible.

5. It was soon known that the vehicle, through its own inertia, did not take on the characteristics of random tumbling, and using various communicator sensing devices, a compilation was made of the attitude and motion assumed by the vehicle. It was one of an extremely slow rolling motion, (all satellite motions are very, very slow) combined with a pitch and yaw that measured approximately 10 degrees up, 5 degrees down, and 35 degrees to either side, in the foreward section of the vehicle, with the aft end remaining virtually on point. It created the image of a cone-shaped object in orbit.

6. Based upon these parameters, the probable impact areas were computed taking into consideration the low point of the cone-shaped position, the high point and the side extremes. The recovery forces developed accordingly.

7. The extremely critical point in space (the injection point where the vehicle initially goes into orbit) was a factor to be considered in the computation of the impact area based upon the high point of the cone-shaped position. It was known that if the high point was a mere fraction of a degree in error, it would be possible, at the time for ejection of the recoverable capsule, to repeat the initial orbit injection. Under such circumstances, the ejected capsule would have sufficient velocity and attitude (which it would attain from the vehicle from which it had just separated) to go into its own orbit.

8. When ejection actually occurred, the attitude of the vehicle was such that the capsule did actually go back into orbit, for essentially the reason as given above. As of this time the parameters of the capsule orbit are:

Period:	101 Minutes
Perigee:	130 Statute Miles
Eccentricity	.08
Capsule Lifetime:	Several Months

9. The capsule will be destroyed by heat of radiation upon re-entry several months hence.

10. At recovery time the payload package was still operating normally in all areas.

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