NSC Briefing

7

15 September 1959

LUNIK II OPERATION

I. In tial Phases of Operation

- 1. Soviet Moon probe (LUNIK II) launched 0240 EDT, 12 Sept.
- 2. Launching followed smooth countdown of

8 hrs on Klyuchi end and only

4 hours at Tyura Tem rangehead end

3. This operation followed 3 abortive attempts with same vehicle

1st Attempt - 6 Sept 0100 CMT (2100 EDT, 5 Sept)

Operation cancelled 2-3 hrs. before launch time

2nd Attempt - 8 Sept. 0240 GMT (2240 EDT, 7 Sept)

Operation cancelled 1 min. before launch time

3rd Attempt - 9 Sept. 0340 GMT (2340 EDT, 8 Sept)

Operation cancelled right at launch time.

- 4. No firm data on difficulties causing cancellations.
- 5. All target launch times within acceptable period for lunar probe.

II. After Launch

6. U.S. Elint (telemetry) and RADINT facilities confirmed vehicle in air.

7. U.S. and U.K. space tracking facilities alerted

about

X +21 hours, obtained tracking data:

Jodrell Bank (UK)

12 Sept.
About 1 hrs.

13 Sept. About 5 hrs.

Starting at X + 5 3/4 hrs. Starting about noon

(0820 EDT)

until impact on moon.

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IF START

12 Sept.

13 Sept.

About 9 3/4 hrs.

Starting at $X \neq 15$ 1/4 hrs.

(1756 EDT)

About 1 3/4 hrs.

Starting at $x \neq 22\frac{1}{4}$ h

(OLOO EDT)

About 7 Min

X+3%+ L.

Starting at 1655 EDT

until impact on moon

- 8. About 5 hrs. after launch, Soviets announced they had launched a "Cosmic rocket" directed toward the Moon. Announced psyload and last stage were only slightly higher than those for LUNIK I.
- 9. Other Western stations were able to intercept radio transmissions from probe but not accomplish tracking.
- 10. There have been no reliable Western reports of sighting the sodium cloud which Soviets said would be used enroute to allow optical tracking.

III. Terminal Phase

- 11. Soviets announced about 33½ hrs. after launch (about 5 hr. before impact), probe would hit a specific area of Moon.
- 12. U.S. early reduction of tracking data indicated probe on impart or near-miss course (not to miss over 400 miles).

13. U.K. (Jodrell Bank) reduction indicated probe would impact.

14, Jodrell Bank and stations both tracking when prote signals

abruptly ceased at about 1702 EDT, 13 Sept.

a. Termination of signals correlated closely with Soviet prediction on when probe would impact on Moon.

- FOP SECRET
- b. Both stations reported that average signal strength increased in Terminal portion of flight. This expected since part of LUNIK II radio transmissions would reflect off of Moon and re-inforce the transmissions being received on Earth directly from LUNIK II.
- c. Jodrell Bank further reported dopplar effects in radio signals received during Terminal portion of flight. This also to be expected as radio signal energy being reflected from Moon would not be in phase with the direct signals from the probe.
- d. Jodrell Bank calculated from dopplar effect that this would be equivalent to an object falling to the surface of the Moon with about the velocity induced by the Moon's gravitational attraction.
- 15. No visual evidence obtained of probes impact on Moon, although several astronomical observatories in Europe and Africa asked to observe.

 Not unexpected, as best telescopes, at Moon distance, could probably resolve no object smaller than a box-car.

IV. Conclusions

- 16. LUNIK II impacted on Moon about 1702 EDF, 13 Sept.
- 17. LUNIK II reportedly about same size as LUNIK I and probably utilized about the same propulsion system.
- 18. Hitting the Moon with a space probe does not require special competance in guidance in fact, it is far more difficult a guidance problem to impact an ICBM within 5 miles of a target at 5500 miles range than to hit the moon (2160 miles diameter) at 225,000 miles distance.

MBC BRIEFING BACKUP PAPER TOP SECRET

15 September 1959

A. TIURA TAN MISSILE AND SPACE OPERATIONS

JOH	Successful	<u>1957</u>	1958	7253	***
	Failure in flight	0	2	2	*
	Failure to launch	0	3		
<u>sriče</u>	Successful.	² 2	1	0	. 3
	Unsuccessful	6	• 1		-1
LIBAR	Buccessful	G			8 ,
	Failure in flight	• 0	. 3 -	1	4
j.	Failure to launch	0	•	3	-3/9

B. WESTERN STATIONS MOST ACTIVE IN LUNIK II OPERATION

1. Jodrell Bank (UK): Radio telescope with 75 meter (about 247 ft) diam. antenna.

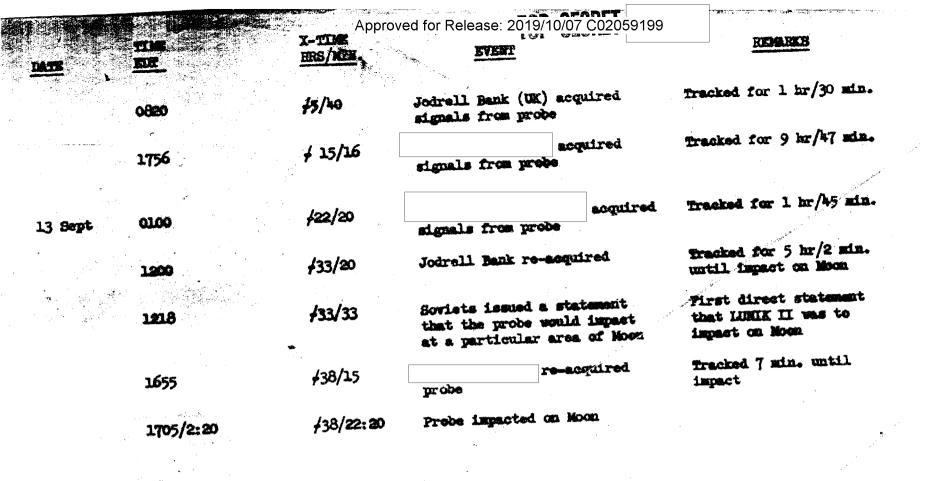
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** 2 2						
Redio tel	escope with	It. diam. auto	ma.	 1.40	54.	

Radio telescope with ft. diam. antenna - This installation not completely operational. Field expedients allowed its usage in this problem.

h. Astronomical Observatories Watching Moon at Time of Impact: Dayden (The Netherlands); Bonn, (Germany); Ucele (Belgium); and Johannesburg (S. Africa).

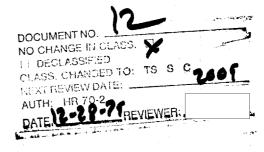
THE PARTY IN 15 September 1959 SOUTH LINEX II OPERATION CHARLES CAL PROPERTY OF I-TIE BE/MI. EVERT 11 Bept 59 -21/40 Kill out of schedule Indicator of space activity activity began 1813 beann countdown 2241 joined in countdown Launch 12 Sept 0239:41 "o" Time Launch occurred 0942:47 £02:55 U.S. Eggshell rec'd telemetry Receipt of data in U.S. delayed because of world communications troubles **40/4:38** Sowiet Flim-Flam tracking began A highly precise space tracking network of stations **40/16:18** rec'd telemetry & radint Vehicle about helfwy to MANCHERA area, Commentiestions troubles delayed recel pt of data in U.S. about 2 hours. About 12/20 Western space stations alerted About Soviet amountement of Comic 15/0 rocket emoute to Moon

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