

TOP SECRET

PRIORITY

25X1

OUT59100

multia

TOP SECRET 142336Z CITE [redacted] 7763

1966 JUL 15 00 05Z

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CORONA/PET

SUBJ: MISSION 1034 PHOTOGRAPHIC EVALUATION INTERIM REPORT

(PEIR)

REF: A. [redacted] 4685

25X1

B. [redacted] 4717

C. [redacted] 4756

D. [redacted] 4757

1

1. NUMERICAL SUMMARY

MSN NO AND DATES: 1034-1 21-26 JUNE 1966
1034-2 26 JUNE - 1 JULY 1966

LAUNCH DATE: 6-21-66
VEHICLE NO: 1626

CAMERA SYSTEM: J-31

PAN CAMERA NOS: FORWARD-LOOKING (MASTER) 186
AFT-LOOKING (SLAVE) 187

MSN 1034-1 S/I NO: D85/109/76

MSN 1034-2 S/I NO: D87/107/105

RECOVERY REVS: D81 AND D161

2. CAMERA SETTINGS

FORWARD-LOOKING: 0.200 INCH SLIT
WRITTEN 23A FILTER

AFT-LOOKING: 0.150 INCH SLIT
WRITTEN 21 FILTER

15 JUL 1966

Cylinder	Cite	Action
1	186	
	187	
	ADMMI	
	SEC BR	
	P. L. ES	
	CCD	
	IPD	
	FD	
	PSD	
	PSD-ICB	
345	TID	✓
	IAD	
	PAG	
	DIAXX-4	
	SPAD	
	NSA-LO	
	DIA-AP	

Advance copy
Sanitized

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GROUP 1 25X1
Excluded from automatic
downgrading and
declassification

3. PERFORMANCE SUMMARY

A. ON THE AVERAGE, THE IMAGE QUALITY OF MISSION 1034 IS NOT AS GOOD AS RECENT MISSIONS. THE QUALITY IS QUITE VARIABLE, THE BEST STILL BEING AS GOOD AS ANY ON RECENT MISSIONS. THIS STATEMENT IS SUPPORTED BY EDGE TRACE DATA (REF C AND D). THE EXACT CAUSES OF THE GENERAL DEGRADATION ARE INDIVIDUALLY SUBTLE AND CANNOT BE ISOLATED; HOWEVER, SEVERAL FACTORS THAT COULD HAVE CONTRIBUTED CAN BE DISCUSSED.

B. SCALE ON THIS MISSION UNDOUBTEDLY PLAYED AN IMPORTANT ROLE IN THE APPARENT IMAGE QUALITY. AVERAGE MISSION ALTITUDE WAS ABOUT 10 PERCENT HIGHER THAN THAT NORMALLY FLOWN ON CORONA MISSIONS, RESULTING IN A CORRESPONDING DECREASE IN PHOTOGRAPHIC SCALE. TAKING SCALE INTO ACCOUNT THE PHOTOGRAPHY FROM THIS MISSION COMPARES FAVORABLY WITH THAT OF MISSION 1033.

C. WEATHER IS ALWAYS A DEGRADING FACTOR IN SATELLITE PHOTOGRAPHY AND, STATISTICALLY, SUMMER TIME EFFORTS GENERALLY PRODUCE POORER RESULTS THAN FALL AND EARLY WINTER MISSIONS. ATMOSPHERIC CONDITIONS, SUCH AS LOCAL TURBULENCE OR PRESSURE BUBBLES, COMBINED WITH HIGH SOLAR ANGLE AND SPECULAR REFLECTION FROM THE OBJECTS PROBABLY ACCOUNTS FOR THE DOUBLE IMAGERY WHICH OCCURRED IN A SMALL AREA OF FRAME 65 REV 55D (REF A, PARA N-1). IT IS HIGHLY IMPROBABLE THAT THIS PHENOMENON WAS CAMERA INDUCED.

D. MISMATCH IN FORWARD MOTION COMPENSATION OBVIOUSLY CONTRIBUTED TO THE LOSS IN IMAGE QUALITY EVEN THOUGH THE EF-

---3---

PECT IS NOT, BY ITSELF, MEASURABLE. THE FAILURE OF THE SINE FUNCTION GENERATOR DURING THE MISSION RESULTED IN A SMALL PORTION OF THE PHOTOGRAPHY HAVING RELATIVELY LARGE COMPUTED FMC ERRORS. HOWEVER, EFFECTIVE OPERATIONAL CONTROL LIMITED THE ERROR ON MOST COVERAGE TO NORMAL VALUES. ALTHOUGH VISUAL INSPECTION OF THE FILM INDICATED NO CLEAR CORRELATION BETWEEN FMC ERROR AND IMAGE QUALITY, IT IS CLEAR THAT SUCH ERRORS HAD TO CAUSE SOME DEGRADATION.

E. THERE IS NO REPEATABLE CORRELATION BETWEEN FORWARD AND AFT IMAGE QUALITY. NO CORN TARGETS WERE DISPLAYED, BUT SEVERAL FIXED TARGETS WERE OBSERVED AND THE BEST GROUND RESOLUTION

25X1

4. ANOMALIES

ANOMALIES INCLUDING THOSE REPORTED IN THE "31" MESSAGES (REF A AND B) WERE REVIEWED.

A. CORONA FOG AFFECTED UP TO 3.0" OF FILM FROM THE MASTER CAMERA STARTING WITH PASS 38D.

CAUSE: THIS FOGGING IS CAUSED BY INPUT METERING ROLLERS AT INSTRUMENT STARTS AFTER EXHAUSTION OF THE PRESSURE MAKE-UP UNIT DUE TO A LEAK.

ACTION: INVESTIGATE CAUSE OF PMU LEAKAGE. THE MINOR CORONA FOGGING WHICH OCCURRED AFTER LOSS OF INTERNAL CAMERA PRESSURE DEMONSTRATES THE VALUE OF CORONA MARKING STANDARDS IN TEST.

B. MINOR LIGHT LEAK FOG AFFECTED SOME FRAMES DURING NON-OPERATE PERIODS.

CAUSE: LIGHT LEAKAGE FROM THE AFT CAMERA AFFECTED BOTH FORWARD AND AFT FILMS. A LEAK AT THE FORWARD CAMERA AFFECTED THE AFT FILM SLIGHTLY IN A FEW INSTANCES.

ACTION: MODIFICATIONS TO MAIN CAMERA LIGHT SEALS HAVE BEEN MADE, EFFECTIVE WITH SYSTEM J-36 AND UP. IT IS RECOMMENDED THAT NO FURTHER ACTION BE TAKEN ON CAMERA LIGHT LEAKS PENDING FLIGHT EXPERIENCE WITH THESE SYSTEMS.

C. THE STARBOARD LOOKING HORIZON CAMERA ON THE FORWARD INSTRUMENT PRODUCED VEILED IMAGERY ON PASSES 8D THROUGH 35D. THE CONDITION STARTS AND ENDS GRADUALLY, AND IS NOT AS SEVERE AS ON PREVIOUS MISSIONS.

CAUSE: THE CAUSE OF THIS PHENOMENON IS STILL NOT UNDERSTOOD. HOWEVER, IT IS NOTED THAT ALL SURFACES IN FRONT OF THE STARBOARD HORIZON LENS ON THE AFT CAMERA WERE PAINTED WITH A DULL BLACK MATERIAL AND THE USUAL VEILING DID NOT OCCUR.

ACTION: THE PET RECOMMENDS THAT ALL BOOTS BE PAINTED ON FUTURE MISSIONS.

D. EXHAUSTION OF STELLAR AND INDEX FILM BEFORE END OF MAIN CAMERA FILM, ALONG WITH FOGGING AT THE ENDS OF BOTH FILMS, ON MISSION 1034-2.

CAUSE: INVESTIGATION OF A SIMILAR ANOMALY ON MISSION 1033 INDICATES THAT THE BACK-UP HOT WIRE CUTTER CAN FUNCTION BEFORE THE PROPER TIME IN THE RECOVERY SEQUENCE.

ACTION: CORRECTIVE ACTION IS IN PROGRESS AT

25X1

NO FURTHER ACTION BY THE PET IS REQUIRED.

E. ON MISSION 1034-1, THE INDEX CAMERA CORRELATION LAMP FUNCTIONED NORMALLY THRU FRAME 5 BUT THEREAFTER PRODUCED IMAGES OF VERY LOW AND VARIABLE DENSITY. THE DENSITY BECAME SO LOW THAT THE IMAGES COULD NOT BE DETECTED IN PRINTS.

CAUSE: UNKNOWN.

ACTION: REVIEW TEST HISTORY FOR POSSIBLE INDICATIONS OF MALFUNCTIONS AND INVESTIGATE ELECTRICAL COMPONENTS FOR POSSIBLE PRESSURE SENSITIVITY.

F. NO EXPOSURE ON INDEX CAMERA FRAME 1 OF MISSION 1034-1.

CAUSE: UNKNOWN. THE CONDITION COULD RESULT FROM EITHER A SINGLE FAILURE OF THE SHUTTER OR A FAILURE OF THE DOOR TO FULLY EJECT UNTIL AFTER THE FIRST EXPOSURE. THE FILM PROVIDES NO EVIDENCE TO SUPPORT EITHER HYPOTHESIS.

ACTION: THE TEAM BELIEVES THAT BECAUSE OF THE MINOR SIGNIFICANCE OF THE ANOMALY AND THE LACK OF EVIDENCE FOR EVALUATION THIS ACTION SHOULD BE CLOSED.

G. CHARACTERISTIC ANOMALIES: THERE ARE CERTAIN CHARACTERISTIC ANOMALIES THAT ARE CONSIDERED INHERENT TO THE OPERATION OF THE CORONA SYSTEM. WHILE THESE ITEMS WARRANT ATTENTION TO PREVENT FURTHER DEGRADATION IT IS NOT FEEL THAT SPECIFIC ACTION ITEMS SHOULD BE ASSIGNED. A SUMMARY OF THESE ITEMS AND THE DEGREE OF DEGRADATION IS PRESENTED BELOW:

(1) STATIC DISCHARGE ALONG THE EDGES OF BOTH PAN CAMERA FILMS ARE LESS THAN NORMAL. DISCHARGES ON THE STELLAR/INDEX RECORDS WAS CONSIDERED NORMAL.

(2) RAIL SCRATCHES FROM BOTH PAN CAMERAS ARE NORMAL.

(3) NO RAGGED FORMAT EDGES WERE OBSERVED.

(4) SCRATCHES IN THE FORMAT OF BOTH PAN CAMERA SYSTEMS ARE CONSIDERED NORMAL.

5. COMMENTS

THE PET INDEX CAMERA PHOTOGRAPHY ANALYSIS IS AS FOLLOWS:

1034-1 - 415 INDEX FRAMES

12 PER CENT OR 51 FRAMES WITH LESS THAN 10 PER CENT CLOUDS, TERRAIN.

4 PER CENT OR 18 FRAMES WITH LESS THAN 10 PER CENT CLOUDS, SNOW AND ICE.

1034-2 - 423 INDEX FRAMES

22 PER CENT OR 93 FRAMES WITH LESS THAN 10 PER CENT CLOUDS, TERRAIN.

2 PER CENT OR 9 FRAMES WITH LESS THAN 10 PER CENT CLOUDS, SNOW AND ICE.

NOTE: DUE TO TRAVEL DIFFICULTIES INTRODUCED BY THE AIRLINE STRIKE SOME MEMBERS OF THE PET WERE NOT PRESENT AND OTHERS HAD TO DEPART EARLY. THIS REPORT WAS ASSEMBLED IN ITS FINAL FORM BY MEMBERS WEBB AND RICHMOND AND IS BELIEVED TO REPRESENT THE CONSENSUS OF THE PET. THOSE MEMBERS WHOSE OPINIONS MAY DIFFER

---7---

FROM THOSE REFLECTED HERE ARE REQUESTED TO COMMENT AS SOON AS
POSSIBLE TO PEIR ADDRESSEES SO THAT THEIR COMMENTS MAY BECOME
PART OF THE RECORD.

T O P S E C R E T

-END OF MESSAGE-