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~~TOP SECRET~~ 292155Z AUG 68 CITE [REDACTED]

PRIORITY [REDACTED]

CORONA

SUBJECT: SO-180 EXPERIMENT, MISSION 1104-2

REF: [REDACTED]

1. THE PREDOMINANCE OF CORONA-INDUCED FOG ON THE SUBJECT FILM AS DESCRIBED IN THE REFERENCED MESSAGES CAUSES CONCERN AS TO THE INTERPRETABILITY OF THE FILM. THIS OFFICE, BEING THE COMPONENT RESPONSIBLE FOR ISSUING THE EVALUATION CABLE (REF) THEREFORE DEEMS IT APPROPRIATE TO FURTHER EXPOUND ON THE POSSIBLE CONSEQUENCES OF MISINTERPRETATING THE SIGNIFICANCE OF THE COLOR RENDITION.

2. FOLLOWING ARE SEVERAL POINTS WORTH OF CONSIDERATION:

A. THE CORONA STATIC-INDUCED FOG CAUSES A GENERAL RED CAST OR VARYING SATURATION IN THE AFFECTED AREAS. THE CORONA DISCHARGE IS EITHER LOW INTENSITY BLUE LIGHT OR AN ENERGY ONLY AFFECTING THE CYAN LAYER OF THE EMULSION, AND THEREFORE IS IMAGED AS RED. THAT RED IS NOT ASSOCIATED WITH INFRARED ENERGY.

B. THE CORONA-INDUCED FOG IS ADDITIVE TO THE IMAGE. THEREFORE, RED IMAGE SATURATION MAY BE EXAGGERATED AND OTHER COLORS CONTAMINATED.

C. IN ADDITION TO THE CORONA FOG ASSOCIATED PROBLEMS, THERE

Declassified and Released by the N R C

In Accordance with E. O. 12958

on NOV 26 6 1981

ARE COLOR RENDITION ANOMALIES CHARACTERISTIC OF THE CAMERA SYSTEM. BECAUSE THIS IS A PANORAMIC SYSTEM, THE RELATIONSHIP OF THE PRINCIPAL RAY (LOOK ANGLE) TO THE SOLAR POSITION VARIES ACROSS THE FORMAT. EXPOSURE AND COLOR BALANCE THEREFORE, ALSO VARY IN ASSOCIATION WITH SCAN ANGLE. AN ADDITIONAL EXPOSURE/ COLOR BALANCE VARIATION CAN BE EXPECTED FROM FRAME TO FRAME AS THE SOLAR ELEVATION CHANGES WITH RESPECT TO VEHICLE POSITION.

D. FINALLY, THERE ARE CERTAIN INHERENT CHARACTERISTICS OF SO-180 FILM THAT NEED TO BE CONSIDERED. FOR INSTANCE, HEALTHY VIGOROUS VEGETATION WILL BE IMAGED DIFFERENTLY DEPENDING ON ITS COLOR AND ITS INFRARED REFLECTING CHARACTERISTICS. A BALSAM POPLAR, FOR INSTANCE REFLECTS APPROXIMATELY 72 PERCENT OF THE 900 MILLIMICRON WAVE LENGTH ENERGY INCIDENT UPON IT, WHILE A YELLOW BIRCH REFLECTS ONLY ABOUT 45 PERCENT OF THE SAME WAVE LENGTH ENERGY. INFRARED ENERGY REFLECTION DIFFERS DISTINCTLY BETWEEN CONIFERS AND HARDWOOD TYPE TIMBER. THE INTERPRETER SHOULD THERE EXPECT TO SEE STANDS OF TIMBER IMAGED AS PREDOMINANTLY BLUE (ALTHOUGH HEALTHY) AND OTHER STANDS OF TIMBER, HAVING A DISTINCT RED SIGNATURE.

3. THE FOREGOING NOTES SHOULD NOT BE CONSTRUED AS A CON-

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DEMATION OF THE PRODUCT. THE POINTS ARE MADE ONLY TO INDICATE
THE CARE WITH WHICH THIS PRODUCT SHOULD BE EXPLOITED.

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END OF MESSAGE