

142330Z June 67

SUMMARY OF MISSION 7105 EVALUATION AT [REDACTED]

1. PROBLEMS ASSOCIATED WITH HIGH BATTERY VOLTAGE CONTINUE TO PLAQUE THE OPERATIONAL PORTION OF THE CHECK-OUT PHASE. WHILE BATTERY VOLTAGES HAVE BEEN REDUCED BELOW THE CRITICAL POINT, ASSOCIATED CROSSTALK APPARENTLY WILL CONTINUE FOR THE PRESENT. TASKING FOR BATTERY POWER DISSIPATION WILL HAVE TO CONTINUE AS A SECONDARY PRIORITY. RECOMMEND TO MINIMIZE THE EFFECTS, EXISTING TASKING BE CANCELED AND RECONSTITUTED BASED ON THE FOLLOWING ENGINEERING RESTRAINTS.

A. BAND C2 AND C3 WHEN TASKED TOGETHER WILL PRODUCE ALL DATA AS WIDE PULSES ON THE CHARLIE CHANNEL. THESE BANDS CAN NOT BE USED WITH ANY OTHER BAND ON THE 7105 CHARLIE SATELLITE, (THEY MUST BE USED ALONE).

B. BAND C12 OF THE 7105 CHARLIE SATELLITE WILL NOT WORK COMPATIBLY WITH ANY OTHER BAND IN THIS SATELLITE, SO IT MUST BE TASKED ALONE.

C. BAND C1 WILL PICK UP ANY DATA TRANSMITTED ON TRANSMITTER NO. 2 (CHARLIE CHANNEL DATA) SO IT IS RESTRICTED TO A TASK WITH ONLY BRAVO CHANNEL DATA PRESENT.

D. BAND D11 OF 7105 DELTA WILL PICK UP ANY DATA TRANSMITTED ON NO. 1 DATA TRANSMITTER SO IT MUST BE TASKED WITH ONLY CHANNEL BRAVO DATA PRESENT.

E. BAND D12 IS INCOMPATIBLE WITH ANY OTHER BAND IN THE 7105 DELTA SATELLITE AND MUST BE TASKED ALONE. WITH EITHER OF THE OTHER BRAVO WIDE DATA CHANNELS, D-12 WILL PROVIDE WIDE PULSES IF SOME OTHER MEANS CAN BE USED TO SORT THE BAND OF ORIGIN.

2. THE FOLLOWING IS SUGGESTED AS A MODIFIED TASK GROUPING FROM THE STANDPOINT OF PAYLOAD COMPATIBILITY ALONE. NSA AND NSG AND NRO MUST PROVIDE THE FINAL GROUPINGS AS IN THE PAST.

A. GROUP FOUR (MODIFIED): 7105C/7105D

7105C-2 (196-350 W2) 7105D-10 (14.5-14.8GC N2)
C-3 (350-550 W2) D-11 (196-550 W2)

NO BRAVO DATA IS ACCEPTABLE.

GROUP FIVE (MODIFIED) 7105C/7105D

7105C-4 (1790-2520 N2) 7105D-1 (1790-2520 N2)
C-7 (6460-6710 W2) D-3 (6450-6725 W2)
C-8 (7780-8510 W1) D-6 (7730-8450 W1)
C-6 (4910-5080 N1) D-2 (4920-5080 N1)

GROUP SIX (MODIFIED) 7105C/7105D

7105C-9 (8090-8630 N2) 7105D-7 (8100-8620 N2)
C-10 (8480-9360 W2) D-8 (8550-9370 W2)
C-11 (9300-9520 N1) D-9 (9340-9515 N1)

GROUP SEVEN (ENGINEERING EVALUATION)

7105A-1 (153.5-165 N2) 7105B-1 (154-165 N2)
A-4 (651-855 W1) B-4 (652-857 W1)
A-2 (166-200 N1) 01AW KQYANPP N1

GROUP EIGHT (ENGINEERING EVALUATION)

7105A-1 (153.5-165 N2) 7105B-1 (154-165 N2)
A-4 (654-865 W1) B-4 (652-857 W1)
A-10 (3105-3315 N1) B-9 (3102-3315 N1)

GROUP NINE (SUGGESTED GROUP TO USE THE REMAINING BANDS FOR GENERAL SEARCH TASK)

7105C-1 (100-124 N1) 7105D-4 (6720-7300 N1)
C-5 (3600-4055 W1) D-5 (7220-7930 W1)
D-7 (8100-8620 N2)
D-8 (8550-9370 W2)

THE ABOVE RECOMMENDED TASKING WILL ALLOW COMPLETE DESIGN CAPABILITY OF THE SATELLITES TO BE UTILIZED INCLUDING TOTAL BAND COVERAGE AND THE ASSOCIATED CAPABILITIES. PRESENT GROUP FOUR RESULTS IN COMPLETELY USELESS DATA AND MODIFIED GROUP FOUR AND FIVE ABOVE WILL BE EMPLOYED UNTIL ADVISED OF YOUR FINAL TASK GROUP SELECTION.

3. LORENZEN SENDS.

699

RECORD OF DISCLOSURE

Code	Date	Signature

B-2 (166-200)

13. 1422Z June 67

COMMUNITY MISSION (TWO) OPERATIONAL EVALUATION AT [REDACTED] (LORENZEN SENDS)

1. MORE EFFICIENT SOLAR CELL RECHARGING SYSTEM USED IN THESE SATELLITES HAS RESULTED IN EXTREMELY HIGH BATTERY VOLTAGES AND SEVERAL PROBLEMS:

- A. IN ORDER TO BRING THE BATTERY VOLTAGES DOWN WITHIN NORMAL LIMITS, WE ARE SETTING THE UNTASKED [REDACTED] IN THE DELAYED TURN-ON MODE SO THAT THEY WILL COME ON 50 MINUTES DOWNSTREAM, THUS NEARLY DOUBLING THE BATTERY DRAIN WHICH WOULD RESULT FROM OUR TASKING ALONE.
- B. THE COMMAND SEQUENCE TO EXECUTE THIS DELAYED COMMAND (MODE-2) IS SOMEWHAT COMPLEX AND HAS ALREADY CAUSED [REDACTED] SOME PROCEDURAL PROBLEMS. BELIEVE THESE ARE NOW SLOWLY BEING SOLVED.
- C. CROSS TALK PROBLEMS HAVE CONTINUED TO APPEAR IN 7105 C AND D. AND MAY BE ASSOCIATED WITH THE HIGH VOLTAGE PROBLEM. BOTH THESE SATELLITES HAVE, DURING THE PAST 24 HOURS, SHOWN AN INCREASING TENDENCY TO PICK UP THE CHANNEL BRAVO (TRANSMITTER NR. 1) OUTPUT ON THE 920-1855 MC BAND NR. 12 AND RETRANSMIT IT AS THOUGH IT WERE IN FACT 920-1855MC INTERCEPTS (WIDE PULSES IN CHANNEL CHARLIE). THIS IS NOT AN INSURMOUNTABLE PROBLEM, BUT MAY NECESSITATE TASKING THIS BAND NR. 12 WITHOUT ANY TASKING ON CHANNEL BRAVO (TRANSMITTER NR. 1). ANTICIPATE THAT LOWER BATTERY VOLTAGE MAY ALLEVIATE THIS PROBLEM.
- D. BAND NR. 3 IN 050 AND BAND NR. 11 IN 050 HAVE SHOWN AN INCREASING OCCURANCE OF CROSSTALK FROM THE DATA ON TRANSMITTER NR. 1 (CHANNEL BRAVO). THIS MAY BE DUE TO AN EXCESSIVELY HIGH HARMONIC BEING RADIATED FROM THIS TRANSMITTER, AS A RESULT OF THE EXCESSIVELY HIGH BATTERY VOLTAGE.

2. DELTA BALL IS STILL INVERTED AS FAR AS WE CAN TELL. NRL IS STUDYING THIS PROBLEM AND MAY HAVE MUCH MORE ACCURATE INFORMATION. AFTER STUDY, NRL WILL DETERMINE THE BEST MANEUVER.

3. NRL HAS EXPERIMENTALLY THRUSTED THE BRAVO BALL AND IS NOW [REDACTED]

4. COMPUTER EFFORTS STILL BEING CHECKED TO ESTABLISH CORRECT OPERATIONAL PROCEDURES. NO LOCATIONS YET. HAMPERED SOMEWHAT BY THE ELEVEN HOURS TAKEN FOR MESSAGE OF ORBITAL ELEMENTS TO GET HERE. ALFA/BRAVO ELEMENTS NEEDED AS OFTEN AS POSSIBLE TO RE-ESTABLISH CONFIDENT EPHEMERIS.

11 14402 June 7

SUMMARY OF OPERATIONS FOR MISSION 7105 FROM [REDACTED] (LORENZEN SENDS)

1. ARRIVED AS SCHEDULED AND FOUND ALL SYSTEMS OPERATIONAL AND READY.
2. GENERAL SUMMARY:
 - A. SATELLITES ALL RESPONDING TO COMMANDS ON FIRST TRY.
 - B. DATA SIGNAL TO NOISE RATIO IS HEALTHY AND CONSISTENT.
 - C. 7105 ALFA, BRAVO AND CHARLIE ARE ALL RIGHT SIDE UP.
 - D. SEPARATION RATE BETWEEN 7105 ALFA AND 7105 BRAVO STILL UNDER ADJUSTMENT. ON-BOARD THRUSTER PERFORMANCE LOWER THAN ANTICIPATED.

CAL SPHERE).

3. AREAS OF EFFORT UNDER STUDY BY NRL TEAM.
 - A. CROSSTALK IN 7105 CHARLIE FROM BAND 7 (SEVEN) INTO BAND 1 (ONE)
 - B. CROSSTALK IN 7105 CHARLIE FROM BANDS 6 (SIX) AND 12 (TWELVE) INTO BAND 3 (THREE).
 MAY RECOMMEND OTHER TASKING COMBINATION TO AVOID THIS IN THE FUTURE AFTER FURTHER STUDY.
- C. 7105 DELTA:

DIFFICULTY WITH THE SLOW, NOISY BOOM MOTOR SO THAT ORIENTATION AND STABILIZATION MAY BE DIFFICULT TO OBTAIN WITHOUT JEOPARDIZING OTHER PAYLOAD FUNCTIONS. MATTER IS UNDER INTENSIVE STUDY AT THE NAVAL RESEARCH LAB.
- D. COMPUTER PROGRAM CHECKOUT CONTINUES. UNABLE TO-DATE TO DO LOCATION SORT DUE TO MINOR "COOK BOOK" PROCEDURE PROBLEMS. IT IS NOT EQUIPMENT. REFINEMENT EFFORT CONTINUING.
4. TASKING COMPLETED WITHOUT CHANGE EXCEPT FOR ORBIT 145 WHICH WAS MISSED IN ORDER TO CARRY OUT THE ATTEMPT TO INVERT PAYLOAD 154 (7105 DELTA), WHICH WAS UNSUCCESSFUL.

5. [REDACTED] COMMAND PROBLEMS ARE MINOR UNFAMILIARITIES WITH 7105 MISSION DOCTRINE, WHICH HAS BEEN CORRECTED.

6. THE TEAM HERE CONFIDENTLY REPORTS THAT MISSION 7105 IS PERFORMING AS EXPECTED, WITH ONLY MINOR PROBLEMS.

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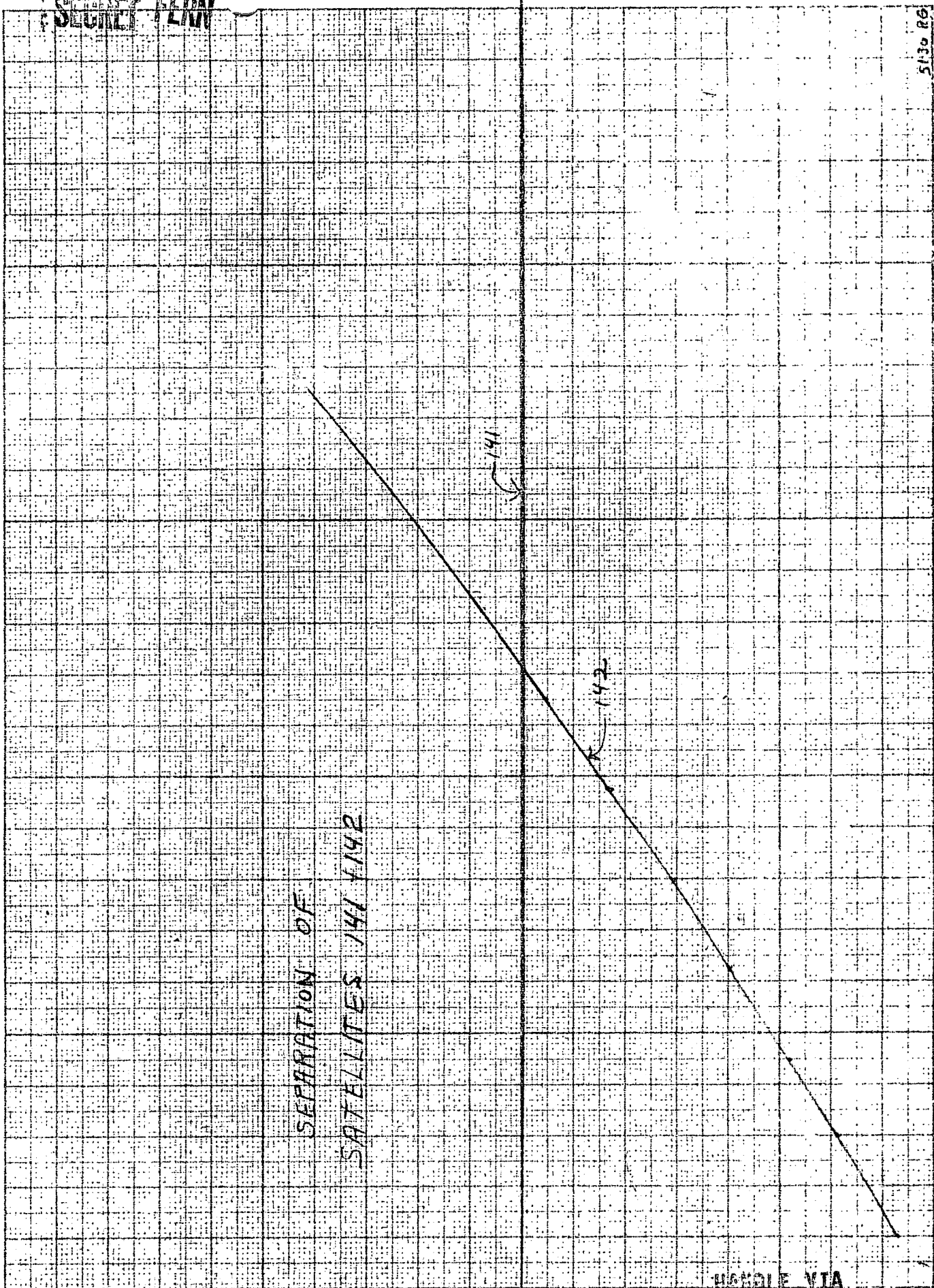
RECORD OF DISCLOSURE

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I. Couple the Engineering Design aspects of an ELINT space program to the Data Analysis effort to:

- A. Get Started early on analysis before deploying each Mission.
- B. Provide the Motivation through participation.
- C. Solve problems in both areas more readily.

II. Technical Review before Program approval

- A. Cost Effectiveness evaluation.
- B. Reasonableness of performance claims.
- C. Analysis evaluation essential.

III. Line Organization to tie all members of the Program together.

- A. Get the Whole-Ball-Of-Wax under a single management
 1. eliminates trouble
 2. " misunderstandings
 3. " parochial special interest areas.
 4. 2

IV; Operational Goals should be clear and in Depth

- A. ABM/AES nowthen what next.etc.
- B. All members of the program should clearly know the goals so efforts are all aimed at same target.

V: Overseas Sites versus Domestic sites for analysis.

- A. In any program with Mass Data capability one must weigh the importance of the data before it is routed toward the CONUS, the urgency determines the route and delivery time. In POPPY the A-to-D capability has allowed the development of an on-site computer, with limited capability to weigh this data and perform limited on-site analysis, as well as the original Quality-Control function.
- B. The Mass of the data can be handled routine if it is evaluated at collection site.
- C. Training Value of having site personnel perform this weighing function

VI: Need for Domestic Billets to retain the highly trained personnel in the program.

VII: Navy has a general need to allow the officers to participate for several tours in the Space oriented programs and develop an expertise which is not a dead-end-street, career wise.

- A. A post graduate curricular specialty should be in space arena.
- B. Enlisted personnel who specialize in the space collection-programs should be encouraged through salary and other benefits to stay in the service instead of being ciphoned off by the community who wants them because of their senior clearances.

VIII: Professional recognition for the work of the civilian team is also essential in so far as security will allow.

- A. Recruitment into this cadre is not now being benefitted by the maximum appeal which might be possible.
- B. Most of us derive the satisfaction from just being a part of the real Action but this is hard to sell until the restraints of security are lifted.

- C. Per a Pool of classified talent could be like at NSA. they are sent to various schools while awaiting clearance.

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