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25 May 1971

MEMORANDUM FOR THE RECORD

SUBJECT: Film Readout Gambit (FROG)

1. Messrs. [redacted] NPIC, attended a meeting at SAMSO, Los Angeles, on 11 May 1971 to discuss the Film Readout Gambit (FROG) System. (b)(3)

2. The meeting was conducted by SAMSO, under the chairmanship of [redacted] Also in attendance were [redacted] of SAMSO; Dr. Richard Stephenson, Aerospace Corp.; Maj. Allser and Maj. Finkel, NRO Staff; [redacted] DIA/DCS; and [redacted] COMIREX Staff.

3. The purpose of the meeting was to apprise the non-SAMSO personnel in attendance of the parameters of the FROG System and to initiate a dialogue between SAMSO and the various organizations represented relative to possible solutions to outstanding problem areas contingent to the operational concept of the system. Some of these solutions are required by SAMSO as inputs to a presentation to be made to EXCOM in July.

4. The morning of 11 May was devoted to briefings by Col. Bonner on the technical aspects of the FROG System, and by Capt. Randazzo on the operational concept envisioned for the system. The afternoon session consisted of general discussions keyed to the morning presentations. Brig. Gen. Allen, SAMSO, was in attendance in the late afternoon for some summations.

5. At the present time, SAMSO is concentrating on preparing cost estimates and additional details on their proposed "Baseline System." The "Baseline," simply, is two

SUBJECT: Film Readout Gambit (FROG) BYE-3135/71

modified GAMBIT vehicles on orbit simultaneously, dumping readout twice a day to a primary receiving station at New Boston, N.H. (BOSS) with a backup station at Vandenburg, Calif. (COOK). Some key characteristics of the system are as follows:

a. Camera - 175" focal length
- 2' ground resolution @ 170 NM alt.
- 2-4" wide strips of film with 3" image
- 200 frames a day per filmstrip, 365 days/year
- 2-15,000' rolls of film
- 3 NM ground cover at nadir

b. Vehicle - Titan 111B booster
- 8.6 mon. nominal life per vehicle
- 2.8 launches per year to insure 2 on orbit at all times
- Maximum life - 15 mon. per vehicle

c. On-board processor - bismat w/2.5 mil. estar base
- rate = 10" min.

d. Laser scanner - 4 microns not size
- [redacted] is prototype (b)(1) (b)(3)

6. Planning incorporates the provision of two copies of film, in either negative or positive form, to exploiters from New Boston or Vandenburg. The reconstituted signal will be twice size of original, i.e., two strips 8" wide with 6" imagery.

7. The operational concept at present is sketchy and SAMSO is dependent upon other organizations for its definition. Some of the problems presented and discussed were as follows:

a. Requirements
- Crisis
- Early Warning/Indications
- Periodic surveillance
- Clusters
- Current intelligence

b. Multi-birds in orbit

c. Multi-revs

d. Orbit phasing
- inclinations
- altitudes
- period control
- lift-off time phasing

e. Readout
- image analysis team locations
- preliminary reporting
- reproduction responsibilities
- transportation of film

f. Retasking

8. It was agreed, at the conclusion of the meeting, that SAMSO would submit to NRO, via cable, a list of questions or tasks that they need completed in support of their July presentation to EXCOM. NRO in turn will task the appropriate agency for a response.

9. Subsequent to the meeting, the Executive Director, NPIC, assigned the NPIC EOI Program Officer the responsibility to study various alternative NPIC operational concepts given a FROG System. This work includes the determination of size and space requirements for the alternative concepts.

(b)(3)

Executive Officer,
Planning, Programming and Budgeting Staff, NPIC

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Attachment:
Operations Concept 10662

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SAFSP

OPERATIONS CONCEPT

10662

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SAFSP

MAJOR CONCEPTUAL PROBLEMS

1. REQUIREMENTS ⟶ PEOPLE (COMIREX)
   - * CRISIS
   - * EW/I
   - * PERIODIC SURVEILLANCE
   - * CLUSTER AREA/TARGETS
2. MULTI-BIRD ⟶ SOFTWARE/PEOPLE
   - * HARDWARE CHANGES
   - * DYNAMIC RESPONSE
3. MULTI-REV ⟶ SOFTWARE/PEOPLE
   - * WHO DOES WHAT, TO WHOM, WHEN ?
   - * FEED-BACK

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SAFSP

MAJOR CONCEPTUAL PROBLEMS (Continued)

4. ORBIT PHASING ⟶ PEOPLE / SOFTWARE
   - * INCLINATIONS
   - * ALTITUDES
   - * PERIOD CONTROL AND CHANGES
   - * LOT PHASING (3/4 HOUR, 3 3/4 HOUR)
5. READ-OUT ⟶ PEOPLE / SOFTWARE
   - * IMAGERY ANALYSIS TEAMS
   - * REPRODUCTION
   - * TRANSPORTATION
6. RETASKING ⟶ PEOPLE

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SAFSP

BASIC PROCEDURES

1. ACCOMPLISH READ-OUT AND IMAGERY RECONSTRUCTION
   A. ONE OR TWO SIGNAL PROCESSORS
2. PERFORM IMAGERY ANALYSIS
   A. INTELLIGENCE COLLECTION - TO WASHINGTON AS REQUIRE
   B. CLOUD-COVER ASSESSMENT - TO STC ON ROUTINE BASIS
   C. SYSTEM ANALYSIS - TO STC AS REQUIRED
3. IMAGERY REPRODUCTION AND DISTRIBUTION
   A. AIRPLANE
   B. AUTO
   C. DOG SLED

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READ-OUT PROCEDURES

1. RTS - RGS COMMUNICATIONS HOOK-UP
2. RGS ESTABLISH VIDEO SIGNAL SYNC
3. RGS TO RTS - BEGIN F. R. O.
4. RGS MONITOR
   - STATUS INFO TO RTS
   - STOP CMD IN EVENT OF ANOMALIES
   - STOP CMD WHEN F. R. O. COMPLETE
5. RECONSTRUCTION
   - ONE POSITIVE, ONE NEGATIVE
   - TWO POSITIVES
6. IMAGERY ANALYSIS (AS REQUIRED)
7. CLOUD COVER ASSESSMENT AND FEEDBACK
8. SYSTEM ANALYSIS AND FEEDBACK

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1. BOSS WITH COOK AS BACK-UP

   - REPRODUCTION AT BOSS AND COOK
   - REPRODUCTION AT WESTOVER, ROCHESTER OR WASHINGTON D.C.
   - TRANSPORT TO WASHINGTON D.C.

SAFSP

DOWNSTREAM OPTIONS

1. WESTOVER WITH COOK AS BACK-UP
   - REPRODUCTION AT WESTOVER
   - TRANSPORT TO WASHINGTON D.C.
2. NPIC VICINITY WITH COOK AS BACK-UP
   - REPRODUCTION AT NPIC
3. BOSS AND KODI WITH COOK AS BACK-UP
   - RELAY TO WASHINGTON D.C. VIA 777
   - REPRODUCTION AT NPIC
4. MIDDLE CONUS
5. OTHER GROUND STATIONS
6. MOBILE UNITS
7. [redacted]

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(b)(1)
(b)(3)

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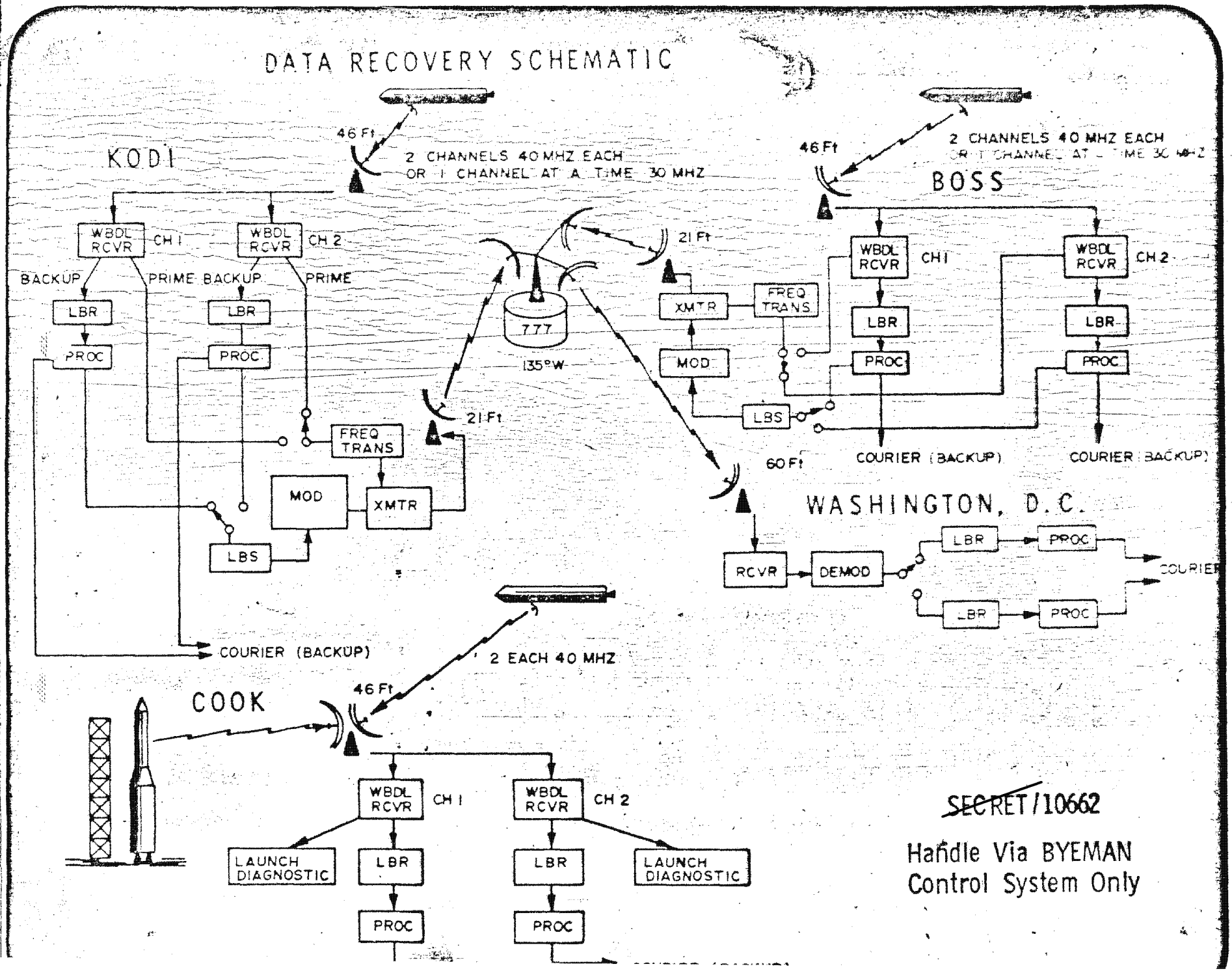

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