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as of 31 December 1977

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9 FEB 1978

MEMORANDUM FOR THE DIRECTOR, NATIONAL RECONNAISSANCE
OFFICE

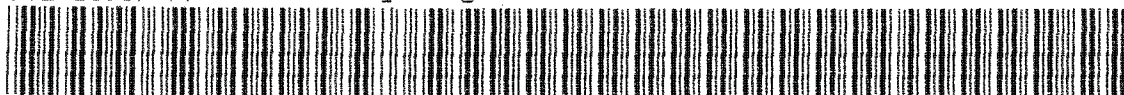
SUBJECT: Quarterly Program Report

Attached is the Program A Quarterly Program Report for
the period from 1 October 1977 through 31 December
1977. Also attached is an Annex detailing Applied
Research/Advanced Technology and Advanced Development
contractual information.

JOHN E. KULPA, JR.
Major General, USAF
Director

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S A F S P
QUARTERLY PROGRAM REPORT
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QUARTERLY PROGRAM REPORT

Program 989 (P989)

Program Director: Col John H. Dean

1. Summary

a. During this reporting period, six P989 satellites were operational. MABELI, now nearly six years old, continues to provide unique data on Soviet ABM radars, although aging components limit operational efficiency. URSALA I has been used with the Real Time Interactive Processor (RTIP) Van. URSALA II and TOPHAT continue to satisfy their respective Continuous Wave (CW) search missions. The status of RAQUEL I is fair. URSALA III is in good condition and is being tasked heavily despite some degradation during this reporting period.

b. URSALA IV was removed from long term storage during this period. Procurement and design have been initiated for incorporation of a single link encryption capability into the URSALA IV spacecraft. RAQUEL IA thermal vacuum testing has been completed in support of a planned March 1978 launch.

c. Development of the LORRI System (26-42 GHz EHF Search Mission) continued on schedule during this reporting period. An early 1980 launch date is anticipated for LORRI.

d. The FARRAH system, which was not approved this summer, was repropoed in the fall budget and subsequently approved. Preliminary design efforts and long lead procurement are being initiated. Full contractual go-ahead is anticipated for early 1978.

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2. Specific Status

a. On-Orbit Spacecraft

(1) Mission 7338/URSALA I. URSALA I has been on orbit since July 1972. Although normal mission tasking was terminated, URSALA I has been used in support of the RTIP Van.

(2) Mission 7339-MABELI. MABELI has been on orbit since January 1972. The overall health is poor; however, it continues to provide the unique capability of collecting emissions from Soviet ADM radars. The two remaining operational tape recorders continue to exhibit intermittent operations resulting in retrieval of approximately ten percent of planned collection. This is a slight improvement over the previous period.

(3) Mission 7340/TOPHAT II. TOPHAT II has been on orbit since April 1974. TOPHAT II continues to support collection against the [] signal in addition to mapping of troposcatter and other communications signals. Overall spacecraft health is good.

(4) Mission 7341/RAQUEL I. RAQUEL I has been on orbit since October 1974. RAQUEL I continues to provide Search and TI mission support in addition to operational support. All three tape recorders are operational; however, tape recorders two and three are beginning to show degradation. Overall spacecraft health is fair.

(5) Mission 7342/URSALA II. URSALA II has been on orbit since November 1973. URSALA II continues to support collection against CW signals. Overall spacecraft health is poor.

(6) Mission 7343/URSALA III. URSALA III has been on orbit since July 1976. The anomalous operation of the Space Ground Link Subsystem (SGLS)

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filters has ceased, and the filters are now operating properly. Approximately 25 November 1977, the pulse receiver system began to experience an intermittent and varying drop in system sensitivity. Several efforts to increase payload operating temperature have succeeded, and the impact of this problem has been minimized. Less than five percent of the readin segments are presently experiencing any significant degradation; however, this condition could deteriorate.

b. Vehicles under Development and Test

(1) Mission 7334/RAQUEL IA. Thermal vacuum testing has been completed and no significant problems exist. Efforts are proceeding to support a 15 March 1978 launch date.

(2) Mission 7345/URSALA IV. URSALA IV was removed from long term storage and modification and refurbishment have begun. Some of the more significant modifications include: installation of the Type 38 recorders with the Digital Interface Unit (DIU), encryption of one payload PCM data link, and addition of the capability to close the payload downlink to a SCF 14' antenna. URSALA IV is planned to launch on Space Vehicle (SV) 15 of the Host Program, currently planned for March 1979.

(3) Mission 7250/LORRI. Hardware development continued on schedule and within budget. Tests conducted with the prototype antennas showed that performance of the antennas met specification. Data processing requirements were defined and a specification written. A cost proposal for developing the data processing was submitted.

(4) FARRAH. FARRAH uses the standard 989 satellite and basic URSALA payload processing concepts but also incorporates predetection recording capability, wider frequency range, greatly improved parametric measurement accuracy, on-board computer

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processing of payload data, a ten MHz bandwidth compressor, and full encryption of payload PCM data. Preliminary design effort and long lead procurement have begun. Contract negotiation is anticipated for early CY78.

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