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DEPARTMENT OF THE AIR FORCE
OFFICE OF SPECIAL PROJECTS (OSAF)
AF UNIT POST OFFICE, LOS ANGELES, CALIFORNIA 90045

REPLY TO ATTN OF: SP-1

20 May 1971

SUBJECT: Quarterly Program Review

TO: DNRO (Dr. McLucas)

The attached booklet contains the twenty-eighth written review of SAFSP projects, covering the period 1 January 1971 through 31 March 1971.

LEW ALLEN, JR.
Brig Gen, USAF
Director

Atch
Quarterly Prog Rve (TS/BYE)

[redacted]

105-20-008

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BYE-15706-71

Copy 1 of 2 copies

QUARTERLY PROGRAM REVIEW

C O N T E N T S

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BYE-15706-71
as of 31 March 1971

QUARTERLY PROGRAM REVIEW

Overall General Summary

Program Director: Brig Gen W. G. King, Jr.
Vice Director : Col H. D. L'Heureux

1. Quarterly Summary of Operations

a. Project CORONA launched two missions this quarter. Mission #1113 carrying payload CR-13 was destroyed shortly after launch on 17 February following a malfunction. Mission #1114 carrying payload CR-14 was launched successfully on 24 March. The first portion was air recovered on 31 March and initial evaluation shows results comparable to or better than the best of past missions. The second portion is still in progress.

b. Project GAMBIT flew one mission which was successfully launched on 21 January with both capsules air recovered on 29 January and 8 February. The mission's peak resolution was [redacted] inches or one of the best yet in this series.

[redacted] 50X1

c. The following vehicles launched in previous periods were still operating as of 31 March:

VEHICLE	PAYLOAD	PURPOSE	OPERATIONAL LIFE
2736	STRAWMAN	TI/EOB	7 Months
[redacted]			
4419	SAVANT II	Soviet type B & M telemetry collection	18 Months
4422	TIVOLI III	TI on ABM emitters & CHICOM telemetry search	13 Months
4421	TRIPOS IV/ SOUSEA III	General search & EOB ABM pulsed & CW emitters	10 Months

Handle Via [redacted]

VEHICLE	PAYLOAD	PURPOSE	OPERATIONAL LIFE
4423	TOPHAT	Map & copy tropospheric scatter comm links	4.5 Months

2. Quarterly Summary of Projects Not Yet Operational

HEXAGON - Because of several modifications by the Sensor Subsystem contractor to their equipment and retest of some aft section electronic modules, the SV-1 availability for launch has been changed to not earlier than 3 May 1971.

3. Key Personnel Changes

Brig Gen William G. King, Jr., the Director of Special Projects was retired on 31 March by Dr. John L. McLucas, at a formal retirement ceremony. He was earlier presented the Distinguished Service Medal by Dr. McLucas.

4. Briefings During Quarter

Location	Personnel and Job Titles	Dates
STC	Mr. Ralph Preston, Mr. Peter Murphy - Staff Members of House Appropriations Committee	11 Jan 71
SAFSP/STC	RAdm R. Middleton, Mr. Howard Barfield, Col John G. Albert, Capt C. E. Reid (USN) - Defense Science Board, Tactical Warning Panel	25 - 28 Jan 71
SAFSP	Dr. John L. McLucas, Under Secretary of the Air Force, Dr. F. Robert Naka, Dr. John F. Martin, [redacted]	7 - 9 Feb 71
SAFSP	Brig Gen Edwin T. O'Donnell (USA) New Commanding Officer, Army Map Service, Wash D.C.	10 Feb 71
SAFSP	Maj Gen Harold C. Teubner, Auditor General, AF Comptroller, Norton AFB	11 Feb 71
SAFSP/STC	RAdm H. H. Epes, Jr., OP-76	1 - 2 Mar 71

50X1

QUARTERLY PROGRAM REVIEW

Program 989

Program Director: Brig Gen W. G. King, Jr.
Project Director: Col D. D. Bradburn

1. Overview

a. Four Project 989 spacecraft are currently being tasked. They are:

FV	NAME	PURPOSE	FREQUENCY (MHz)	MOS. IN ORBIT
4419	SAVANT II	Soviet type B and type M Telemetry collection	61, 66, 71, 76, 163, 165, 181, 192, 241, 248	18
4422	TIVOLI III	Technical intelligence on ABM emitters and CHICOM telemetry search	50 - 4020	13
4421	TRIPOS IV/ SOUSEA III	General search and EOB ABM pulsed and CW emitters	4,000 - 12,000	10
4423	TOPHAT	Map and copy tropospheric scatter communications links	450 - 1,000	4.5

b. Vehicles in Process

(1) FV 4424 MABELI. The MABELI payload was delivered by the subcontractor (ESL) on 23 February 1971. It is presently undergoing temperature calibration at the Lockheed facility. MABELI will be available for launch in mid-July 1971. The spacecraft is dual configured, that is, it can be launched from either a CORONA or a HEXACON host vehicle.

(2) FV 4425 URSALA. Fabrication of the URSALA payload continues at Motorola, Scottsdale, Arizona. Although no significant technical problems are being encountered, the subcontractor

has not been able to maintain the initial delivery schedule. It is now anticipated that Motorola will be one month late in their payload delivery. If further schedule slips are not encountered, it will still be possible to meet the late September 1971 launch date originally projected for URSALA. The FV 4425 spacecraft is also dual-configured so that it may be launched from either a CORONA or HEXAGON host vehicle.

(3) FV 4427 ARROYO. In February, the ARROYO system was undergoing a normal testing sequence which would have made the system available for launch on or after 23 April 1971. On 18 February 1971, following the launch phase failure of CORONA mission 1113, an accelerated test schedule for ARROYO was adopted in an attempt to meet the accelerated 24 March 1971 launch date for CORONA mission 1114. Since the system is not dual-configured and it must either be launched from a CORONA vehicle, or alternately, it must be completely reworked to be compatible with a HEXAGON launch. This latter alternative is very unattractive both from a cost and a technical standpoint. There does exist a third, but also unattractive alternative to a CORONA launch for ARROYO. It is possible that ARROYO could be launched from the POPPY 2707 mission scheduled for late 1971 or early 1972. However, the inclination angle and height at apogee which have been selected for the 2707 mission are unsatisfactory in terms of meeting the objectives of the ARROYO mission. For these reasons, a concerted effort was undertaken to make ARROYO available for the 24 March 1971 CORONA mission. This accelerated testing sequence proceeded smoothly through 15 March 1971 and the vehicle was shipped on that date from LMSC to launch facility at Vandenberg AFB. On 16 March 1971 during revalidation tests at Vandenberg, a system failure occurred, which manifested itself as a loss in system sensitivity across all of the ARROYO intercept bands. The system was returned to the LMSC at Sunnyvale where investigations showed that a failure of the synthesizer amplifier had occurred. Corrective action and subsequent re-testing and revalidation would have required a seven day slip in the CORONA 1114 launch. from 24 to 31 March 1971. In consultation with the NRO staff, a decision was made on 17 March 1971 to reprogram ARROYO for a later host mission. The defective amplifier has been replaced and a recertification of the system begun. Under this schedule, ARROYO will be available for a CORONA launch on or after 19 May 1971.

d. Programmed launches

FV	NAME	PURPOSE	FREQUENCY (MHz)	LAUNCH DATE	HOST
4427	ARROYO	Map Microwave Communications sites	1200-2200 3400-3900	16Jun71	CORON

Handle Via
[redacted]

FV	NAME	PURPOSE	FREQUENCY (MHz)	LAUNCH DATE	HOST
4425	URSALA	General search and EOB	2000 - 12000	23Sep71	HEXAGON
4424	MABELI	Technical intelligence on principal known Soviet ABM emitters	151 - 165 387 - 426 862 - 964 1500 - 2500	23Dec71	HEXAGON

2. Program Direction

During the period of this report, total program approval increased from $23.943 to $25.943. This increase is accounted for by a $2.000 transfer from undefined into Spacecraft and Payloads, 3020 BLACK. Reference WHIG 0193.

3. Technical Status

a. On-Orbit Vehicles

(1) FV 4419 SAVANT II, now in its 18th month of operation, is being tasked at an average rate of 22 readouts per week. On-pad and aircraft telemetry are being intercepted. Only one spacecraft transmitter remains operational, but readout in the signal recognition mode has not been greatly affected. The total number of FV 4419 readouts has exceeded 3300.

(2) FV 4422 TIVOLI III is in its 13th month of operation. The average number of readouts per week is 63. Over 3400 readouts have been successfully completed by FV 4422.

(3) FV 4421 TRIPOS IV/SOUSEA III is now in its 10th month of operation. It is being tasked at an average rate of 54 readouts per week. The mission success of this system has been outstanding. The FV 4421 CW subsystem, originally intended as a secondary add-on payload, [redacted] 25X1
[redacted] This discovery will 25X1
greatly enhance the mission effectiveness of the forthcoming HARVESTER [redacted] TRIPOS/SOUSEA has also 25X1
intercepted over 3000 other CW signals in the 4000 - 12,000 MHz region, which provides some justification for the RAQUEL system, a new program 989 mission concept now under development. The pulse intercept subsystem of TRIPOS/SOUSEA has been equally successful. Location accuracies of [redacted] have been achieved on Calibration Van signals and [redacted] accuracies have been achieved on known 50X1
Soviet emitters. The system has been used for several crisis monitoring exercises, and was extremely effective in supporting the TANGIBLE ocean surveillance demonstration recently completed.

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Intercept data from ship radars off the Pacific Coast were transponded in real time to the Vandenberg tracking station and subsequently routed, also in real time, to the Sunnyvale processing facility by microwave transmission. After processing, the results summarizing the intercept data by geoposition and emitter characteristics were provided to the Navy typically in two hours or less after intercept.

(4) FV 4423 TOPHAT, now in its fourth month of operation, is being tasked at an average rate of 79 readouts per week. The initial mapping of the Soviet [redacted] 25X1 system has been completed successfully, and the more detailed task of link association and identification has been started.

b. Spacecraft in Process

(1) FV 4427 ARROYO. As discussed above, ARROYO is being recycled through a system testing sequence leading to its availability for launch on or after 19 May 1971. It is now scheduled for a 16 June 1971 launch on CORONA mission 1115. The 19 May 1971 flight availability date for ARROYO provides approximately one month margin against a CORONA schedule change. If CORONA missions 1115, 1116, and 1117 are not flown, ARROYO will have to be retrofitted for a HEXAGON launch or a POPPY launch as discussed above.

(2) FV 4424 MABELI. The MABELI payload has been delivered by the subcontractor, ESL. The FV 4424 system will be ready for launch in mid-July 1971.

(3) FV 4425 URSALA. Also, as discussed above, the URSALA payload development is proceeding smoothly, although slightly behind schedule. If further delay is not encountered, the system will be available for late September 1971 launch. Data processing software is being developed to allow for the reporting of mission data from any tracking station to the STC (Sunnyvale) in real time. This crisis response capability will provide an intercept reporting time of six hours, or less, for special tasking exercises.

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DEPARTMENT OF THE AIR FORCE
OFFICE OF SPECIAL PROJECTS (OSAF)
AF UNIT POST OFFICE, LOS ANGELES, CALIFORNIA 90045

REPLY TO ATTN OF: SP-1

30 July 1971

SUBJECT: Quarterly Program Review

TO: DNRO (Dr. McLucas)

The attached booklet contains the twenty-ninth written review of SAFSP projects, covering the period 1 April 1971 through 30 June 1971.

LEW ALLEN, JR.
Brig Gen, USAF
Director

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QUARTERLY PROGRAM REVIEW

C O N T E N T S

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BYE-15838-71
as of 30 Jun 1971

QUARTERLY PROGRAM REVIEW

Overall General Summary

Program Director: Brig Gen Lew Allen, Jr.
Vice Director : Col H. D. L'Heureux

1. Quarterly Summary of Operations

a. Project CORONA launched no missions this quarter. The second phase of Mission 1114 was successfully completed on 9 April 1971. Launch schedule for Mission 1115 is being maintained at an R-14 hold status.

b. The first HEXAGON satellite was launched on 15 Jun 1971 with the initial re-entry vehicle recovered on 20 June, followed by the second recovery on 26 Jun 1971.

c. Project GAMBIT launched Mission 4331 on 22 April with successful air recoveries made on 30 April and 11 May 1971. Total targets acquired were the highest in this program's history.

d. Project SIGINT launched no missions this quarter. STRAWMAN #4 is progressing toward a scheduled launch date of 16 July 1971.

e. The following vehicles launched in previous periods were still operating as of 30 June:

VEHICLE	PAYLOAD	PURPOSE	OPERATIONAL LIFE
2736	STRAWMAN	TI/EOB	10 Months
			50X1
4422	TIVOLI III	TI on ABM emitters & CHICOM telemetry search	16 Months
4421	TRIPOS IV/ SOUSEA III	General search & EOB ABM pulsed & CW emitters	13 Months

VEHICLE	PAYLOAD	PURPOSE	OPERATIONAL LIFE
4423	TOPHAT	Map and copy tropospheric scatter communications links	7½ Months

50X1

2. Personnel

a. A total of nine SAFSP officers were selected for promotion to the grade of Colonel.

b. Instructions for preparing the new Personnel Control List were mailed to supporting activities.

3. Briefings During Quarter

Location	Personnel and Job Titles	Dates
SAFSP	Hon David Packard, Dep Secy of Def Hon John S. Foster, Jr., DDR&E Hon John L. McLucas, Under Secretary of the AF Dr. F. Robert Naka, Dep Under Secretary of the AF VAdm Vincent P. dePoix, Dep Dir (Adm Eval & Mgmt) (DDR&E)	5 Apr 71
SAFSP	Dr. M. E. Lasser, Chief, Army Scientist Dr. R. L. Haley, Scientific Advisor to Missiles and Space Directorate, Army Office of R&D	12 Apr 71
SAFSP	Maj Gen Raymond P. Murphy, Dir of Joint Continental Defense Sys Integration Planning Staff of JCS	17 May 71
SAFSP	Gen Jacob Smart (AFRet), NASA	21 May 71
SAFSP	Lt Cmdr Charles D. Kimble, OPNAV, Wash, DC	10 Jun 71
SAFSP	Hon John L. McLucas, Under Secretary of the AF Dr. F. Robert Naka, Dep Under Secretary of the AF Mr. Harry Davis, Dep Under Secretary of the AF	23 Jun 71

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BYE-15838-71
as of 30 Jun 1971

QUARTERLY PROGRAM REVIEW

Program 989

Program Director: Brig Gen Lew Allen, Jr.
Project Director: Col H. B. Stelling

1. Overview

a. Three Project 989 spacecraft are currently being tasked. They are:

FV	NAME	PURPOSE	FREQUENCY (MHz)	MOS IN ORBIT
4422	TIVOLI III	Technical intelligence on ABM emitters and CHICOM telemetry search	50 - 4020	16
4421	TRIPOS IV/ SOUSEA III	General search and EOB ABM pulsed and CW emitters	4,000 - 12,000	13
4423	TOPHAT	Map and copy tropospheric scatter communications links	450 - 1,000	7.5

b. Vehicles in Process

(1) FV 4424 MABELI. The payload was delivered by the subcontractor (ESL) in February 1971. It is presently undergoing final system testing at the Lockheed facility with availability for launch in mid-July 1971. This spacecraft can be launched from either a CORONA or a HEXAGON host vehicle.

(2) FV 4425 URSALA I. Fabrication of the payload continues at Motorola, Scottsdale, Arizona. Although no significant technical problems are being encountered, the subcontractor has not been able to maintain the initial delivery schedule. It is now anticipated that URSALA I will be available for a mid-December 1971 launch (467 SV III), rather than the late September 1971 launch (467 SV III) originally forecast. The spacecraft may also be launched from either a CORONA or a HEXAGON host vehicle.

(3) FV 4426 ARROYO. ARROYO is presently being prepared for launch with the July 1971 CORONA mission (1116). If this mission is significantly rescheduled, ARROYO will be recycled for either a subsequent CORONA mission or for the projected November 1971 POPPY mission (2707). As previously reported, the POPPY orbital inclination and apogee are not optimum from the standpoint of this mission which would result in some loss of quantity and quality. This vehicle cannot be launched from a HEXAGON host without significant structural rework.

(4) FV 4426 URSALA II. NRO approval has been received to proceed with the fabrication of FV 4426 as URSALA II. The system will be prepared for launch as early as summer 1972 from a HEXAGON host.

c. Programmed Launches

FV	NAME	PURPOSE	FREQUENCY (MHz)	LAUNCH DATE	HOST
4427	ARROYO	Map microwave communications sites	1200 - 2200 3400 - 3900	Jul 71	CORONA
4424	MABELI	Technical intelligence on principal known Soviet ABM emitters	151 - 165 387 - 426 862 - 964 1500- 2500	Oct 71	HEXAGON
4425	URSALA I	General search and EOB	2000 - 12000	Dec 71	HEXAGON
4426	URSALA II	General search and EOB	2000 - 12000	Summer 1972	HEXAGON

2. Program Direction

The approved program for Project 989 declined from $25.943 million, 31 Mar 1971, to $23.243 million, 30 Jun 1971, because the $2.7 million programmed for Spacecraft Common was not required due to the lack of new vehicle approvals.

3. Technical Status

a. On-Orbit Vehicles

(1) FV 4419 SAVANT II. Re-entered on 16 May 1971 after 20 months of successful operations. During its lifetime, over 3300 data readouts were accomplished.

(2) FV 4422 TIVOLI III. This spacecraft is in its sixteenth month of operation. Over 4000 readouts have been successfully completed.

(3) FV 4421 TRIPOS IV/SOUSEA III. TRIPOS/SOUSEA is now in its thirteenth month of operation. The mission success of this system has been singularly outstanding. The CW subsystem, originally intended as a secondary add-on payload, has discovered and repeatedly intercepted a signal believed to be the [redacted] 25X1
25X1
forthcoming HARVESTER dedicated [redacted] 25X1
In addition, TRIPOS/SOUSEA has intercepted over 3800 other CW signals in the 4000 - 12,000 MHz region. The pulse intercept subsystem of TRIPOS/SOUSEA has been equally successful. [redacted] 25X1
25X1
has been used for several crisis monitoring exercises and was extremely effective in supporting the TANGIBLE ocean surveillance demonstration. During the TANGIBLE exercise, TRIPOS/SOUSEA provided surveillance of the U. S. First Fleet maneuvers off the U. S. Pacific Coast. Intercept data from ship radars were transponded in real time to the Vandenberg tracking station and subsequently routed, also in real time, to the [redacted] by microwave transmission. After processing, the results summarizing the intercept data by geoposition and emitter characteristics were provided to the Navy typically in two hours or less after intercept. 50X1

(4) FV 4423 TOPHAT. This mission is now in its seventh month of operation. The initial mapping of the Soviet [redacted] 25X1
system has been completed, and the more detailed task of link association and identification has been started. 25X1

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DEPARTMENT OF THE AIR FORCE
OFFICE OF SPECIAL PROJECTS (OSAF)
AF UNIT POST OFFICE, LOS ANGELES, CALIFORNIA 90045

REPLY TO ATTN OF: SP-2

4 November 1971

SUBJECT: Quarterly Program Review

TO: DNRO (Dr. McLucas)

The attached report is a review of the SAFSP programs for the period 1 July through 30 September 1971.

Frank S. Buzard

FRANK S. BUZARD, Col, USAF
Vice Director

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Quarterly Prog Review
(TS/BYE)

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92 pgs

QUARTERLY PROGRAM REVIEW

C O N T E N T S

50X1

BYE 15929-71
as of 30 Sep 1971

QUARTERLY PROGRAM REVIEW

Overall General Summary

Program Director: Brig Gen Lew Allen, Jr.
Vice Director: Col F. S. Buzard

1. Quarterly Summary of Operations

a. Project CORONA, Mission No. 1115, carrying payload CR-15 and P-989 Vehicle No. 4427 (ARROYO), was successfully launched on 10 September. Both capsules were recovered in the air on 17 and 29 September.

b. Project HEXAGON's first flight was finally completed on 6 August when the vehicle was de-boosted from orbit. The third reentry vehicle was lost on 10 July due to a parachute malfunction. Efforts are now under way by the Navy to try to retrieve it from the ocean. The fourth reentry vehicle was recovered in the air on 16 July.

c. Project GAMBIT, Mission No. 4332, was launched on 12 August after a one-day delay. Both reentry vehicles were successfully air recovered on 22 August and 3 September. This was the first flight of the long tank booster and the R-5 lens.

d. Project EARPOP launched the fourth STRAWMAN vehicle on 16 July. Both the REAPER and THRESHER payloads have operated perfectly while the HARVESTER payload registered two anomalies which limit its effectiveness.

e. The following vehicles launched in previous periods were still operating as of 30 September:

VEHICLE	PAYLOAD	PURPOSE	OPERATIONAL LIFE
2736	STRAWMAN	TI/EOB	13 Months
[redacted]			50X1
4422	TIVOLI III	TI on ABM Emitters and CHICOM Telemetry Search	19 Months

[redacted]

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VEHICLE	PAYLOAD	PURPOSE	OPERATIONAL LIFE
4421	TRIPOS IV/ SOUSEA III	General Search and EOB ARM Pulsed and CW Emitters	16 Months
4423	TOPHAT	Map and Copy Tropospheric Scatter Communications Links	10 1/2 Months

50X1

2. Personnel

a. A letter requesting one year extensions for 33 officers on the Personnel Control List was forwarded to DNRO on 9 August.

b. Dr. McLucas on 10 September presented the Legion of Merit and the Civilian Meritorious Service Award to Col K. R. Duncan and Mrs. Margaret Wather respectively.

3. Briefings During Quarter

Location	Personnel and Job Titles	Dates
SAFSP	Lt Gen Donald V. Bennett, Director DIA, Col James C. Fitzpatrick, Jr. and John Hughes, DIA	20 Jul
VAFB	Same as Above	21 Jul
MSC/STC	Same as Above	22 Jul
SAFSP	Brig Gen William H. Best, Jr. Commander, AWS, MAC	28 Jul
SAFSP	EXRAND (Exploitation Research & Development Subcommittee) of the COMIREX - 10 Members	2 Aug
VAFB	Same as Above	3 Aug
STC	Same as Above	4 Aug
SAFSP	Dr. Edward Teller, President, Foreign Intelligence Advisory Board, Lawrence Radiation Laboratory	7 Sep

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QUARTERLY PROGRAM REVIEW

Program 989

Program Director: Brig Gen Lew Allen, Jr
Project Director: Col H B Stelling, Jr

1. Overview

a. Four Project 989 spacecraft are currently being tasked. They are:

FV/MSN	NAME	PURPOSE	FREQUENCY (MHz)	MOS IN ORBIT
4422	TIVOLI III	Technical intelligence on ABM emitters and CHICOM telemetry search	50 - 4,020	19
4421	TRIPOS IV/ SOUSEA III	General search and EOB, pulsed and CW emitters	4,000 - 12,000	16
4423	TOPHAT	Map and copy tropospheric scatter communications links	450 - 1,000	10
4427	ARROYO	Map microwave communications site locations	1,200 - 2,200 3,400 - 3,900	1

b. Vehicles in Process

(1) FV 4424 MABELI. The MABELI system completed in-flight readiness status in July 1971. In late August it was shipped to Vandenberg AFB as a backup system to the scheduled September ARROYO launch. It was not required in that capacity, and accordingly returned to Lockheed, Sunnyvale. Currently the MABELI system is being prepared for launch on the HEXAGON SV II system.

(2) FV 4425 URSALA I. Fabrication of the payload continues at the Motorola, Scottsdale, Arizona, facility. Additional schedule slippage has been encountered, principally as a consequence of piece part component failures. Accordingly, it is now anticipated that the system will not be available for flight prior to the HEXAGON SV III launch currently scheduled for mid-March 1972. Fabrication of the URSALA I spacecraft at Lockheed is proceeding on schedule.

(3) FY 4426 URSALA II. Fabrication of both payload and spacecraft is proceeding toward a flight availability date in summer 1972. URSALA II is being fabricated for launch from a HEXAGON host.

c. Programmed Launches

FY	NAME	PURPOSE	FREQUENCY (MHz)	LAUNCH DATE	HOST
4424	MABELI	Technical intelligence on principal Soviet ABM emitters	151 - 165 387 - 426 862 - 964 1,500 - 2,500	Nov 71	HEXAGON
4425	URSALA I	General Search and EOB	2,000 - 12,000	Mar 72	HEXAGON
4426	URSALA II	General Search and EOB	2,000 - 12,000	Summer 72	HEXAGON

2. Program Direction

Due to reestablishment of the program to conform with five year fiscal limitations, the defined FY 1972 program increased from $18.766 million to $19.872 million. The increase was due principally to recognition of development requirements.

3. Technical Status

a. On-Orbit Vehicles

(1) FY 4421 TRIPOS IV/SOUSEA III. This system is now in its sixteenth month of operation. The success of this mission has been outstanding. The CW subsystem, originally intended as a secondary add-on payload, has repeatedly intercepted a [redacted] Location accuracies of [redacted] continue to be obtained on calibration van signals as well as on known Soviet emitters. The system has been used for many QRC and crisis monitoring exercises and was extremely effective in supporting the TANGIBLE and ROPEVAL ocean surveillance exercises. Over 2,700 mission data readouts have been successfully completed. 25X1 50X1

(2) FY 4422 TIVOLI III. This system is in its nineteenth month of operation and continues to provide timely technical intelligence on ABM as well as previously unidentified Soviet emitters. Over 4,900 readouts have been completed.

(3) FY 4423 TOPHAT. This mission is now in its tenth month of operation. The system tasking remains extremely heavy but performance remains flawless. The initial mapping mission having been completed, the system has been directed to the more detailed task of link association and identification.

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(4) FY 4427 ARROYO. The ARROYO system was launched on a CORONA host vehicle on 10 September 1971. The orbit achieved as well as the initial spin axis orientation and rate were all within the pre-flight predicted range. All spacecraft systems are fully operational and operating correctly except for the Solar Aspect Sensor data words in which the most significant bit is not indicating correctly. However, since this bit changes very infrequently throughout the mission (and these changes may be predicted), the net effect of this anomaly is to cause a correctable software inconvenience. The ARROYO payload has been tasked successfully in both the sidelobe and main beam modes, both against calibration van emissions and Soviet emitters. On the basis of preliminary data, the ARROYO system sensitivity appears adequate in all bands.

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DEPARTMENT OF THE AIR FORCE
OFFICE OF SPECIAL PROJECTS (OSAF)
AF UNIT POST OFFICE, LOS ANGELES, CALIFORNIA 90045

REPLY TO ATTN OF: SP-2

24 January 1972

SUBJECT: Quarterly Program Review

TO: DNRO (Dr. McLucas)

The attached report is a review of SAFSP programs for the period 1 October through 31 December 1971.

FRANK S. BUZARD
Colonel, USAF
Vice Director

1 Atch
Quarterly Program Review
(TS/BYE)

Mr. Holleran

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BYEMAN

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BYE-15592-72
Cy 2 of 3
Pg 1 of 83 pgs

QUARTERLY PROGRAM REVIEW

C O N T E N T S

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Handle Via
BYEMAN
Control System Only

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BYE-15592-72
as of 31 Dec 1971

QUARTERLY PROGRAM REVIEW

Overall General Summary

Program Director: Brig Gen Lew Allen, Jr.
Vice Director: Col F. S. Buzard

1. Quarterly Summary of Operations

a. No CORONA missions were flown in this period. As of 31 Dec 1971 two systems were in a reserve status of R-38 or less.

b. The second launch of Project HEXAGON was scheduled for 21 Dec 1971. Technical problems with the booster have now delayed the launch until early January.

c. Project GAMBIT, Mission 4333, was successfully launched on 23 October. Satellite Recovery Vehicles 1 and 2 were air recovered on 3 and 16 Nov. A peak resolution of [redacted] was obtained on the tribar targets--the best ever produced.

d. Project SIGINT successfully launched POPPY Mission [redacted] on 14 December. The four payloads were ejected as planned.

[redacted]

50X1

f. The following vehicles launched in previous periods were still operating as of 31 December:

Vehicle	Payload	Purpose	Operational Life
2736	STRAWMAN III	TI/EOB	16 months (limited operating mode)
2737	STRAWMAN IV	TI/EOB	5½ months

[redacted]

~~TOP SECRET~~

Handle Via
BYEMAN

BYE-15592-72
as of 31 Dec 1971

Vehicle	Payload	Purpose	Operational Life
4421	TRIPCS IV/ SOUSEA III	General search and EOB ABM pulsed and CW emitters	19 months
4423	TOPHAT I	Map and copy tropospheric scatter and communications links	13 months

2. Personnel

50X1

a. The Personnel Control List was approved as submitted originally in August.

b. Col K. R. Duncan, Deputy Director for Operations, was retired on 30 November.

3. Briefings During Quarter at SAFSP

Personnel & Job Titles	Dates
Mr. Daniel J. Brockway Hq USAF, Directorate of Space	6 Oct 1971
Cdr Grant F. Haggquist, Jr., Asst Project Mgr for Advance Programs	13 Oct 1971
Cdr Douglas J. Donohue, Project Officer, Adv Technology (Program C Staff Officers)	13 Oct 1971
VADM George E. Moore, Dep Cdr, Naval Materiel Command	8 Nov 1971
Gen Jacob E. Smart, Willis H. Shapley, NASA	15 Nov 1971
Mr. William A. Anders, Exec Secretary, NASC	16 Nov 1971
Dr. John L. McLucas, Under Secretary of the Air Force	13 Dec 1971

QUARTERLY PROGRAM REVIEW

Program 989

Program Director: Brig Gen Lew Allen, Jr.
Project Director: Col H. B. Stelling, Jr.

1. Overview

a. Two Project 989 spacecraft are currently being tasked. They are:

FV/MSN	NAME	PURPOSE	FREQUENCY	MOS IN ORBITS
4421/7332 7333	TRIPOS IV/ SOUSEA III	General Search and EOB, pulsed and CW emitters	4,000-12,000	19
4423/7334	TOPHAT I	Map and copy tropospheric scatter communications links	450 - 1,000	13

b. Vehicles in Process

(1) FV 4424 MABELI. The MABELI system completed in-flight readiness status in July 1971. In late August it was shipped to Vandenberg AFB in a CORONA compatible configuration as a backup system to the scheduled September ARROYO launch. It was not required in that capacity and was returned to Lockheed, Sunnyvale, in mid-September. Subsequently, the system was retrofitted to a HEXAGON configuration, and on 26 November 1971 it was mated to the HEXAGON SV II system. At the present time, MABELI is at Vandenberg awaiting a mid-January 1972 SV II launch.

(2) FV 4425 URSALA I. Fabrication of the payload at the Motorola, Scottsdale, Arizona, facility has been completed, and final acceptance testing is scheduled to be completed in late January 1972. The spacecraft construction has also been completed. System testing is scheduled to begin on 4 February 1972 with a launch availability date of June 1972 in a HEXAGON configuration.

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(3) FV 4426 URSALA II. Payload delivery is scheduled for 23 March 1972 with a system flight availability date of August 1972. This system will be configured for a HEXAGON Block I host. As such, it will be compatible with HEXAGON vehicles through SV VI. A mission number and required flight date have not been assigned to URSALA II.

(4) FV 4428 TOPHAT II. Fabrication of the payload has started at the LTV-E facility in Garland, Texas. Payload delivery is scheduled for December 1972 with a flight availability date in June 1973.

(5) FV 4429 RAQUEL. The payload work statement has been completed and will be released to prospective bidders during the first week of January 1972. The system will be available for launch in early 1974.

c. Programmed Launches

FV/MSN	NAME	PURPOSE	FREQUENCY	LAUNCH DATE	HOST
4424/7339	MABELI	Technical Intelligence on principal Soviet ABM emitters	151-165 387-426 862-964 1,500-2,500	Jan 72	HEXAGON SV II
4425/7338	URSALA I	General Search and EOB	2,000 - 12,000	Jun 72	HEXAGON
4426	URSALA II	General Search and EOB	2,000 - 12,000	None	HEXAGON (Block I)
4428/7340	TOPHAT II	Map and identify tropospheric scatter communications links	450-1,000	Jun 73	HEXAGON
4429/7341	RAQUEL	General Search and Technical Intelligence	2,000-18,000	74	HEXAGON

Handle Via BYEMAN System Only

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2. Program Direction

The approved program increased from $20.372 to $20.548 because $ .176, [redacted] was transferred from Undefined Funds. 25X1

3. Technical Status

a. On-Orbit Vehicles

(1) FV 4418 TIVOLI II. On 24 September 1970, after the successful launch of 4422, TIVOLI III, 4418 TIVOLI II was placed in dormant status. On 17 November 1971, after reentry of TIVOLI III, TIVOLI II was reactivated and taskings were accomplished prior to its reentry on 6 December 1971. At reentry, the system was 33 months old.

(2) FV 4421 TRIPOS-SOUSEA. This system is now in its nineteenth month of operation. The success of this mission continues to be outstanding. Over 3,000 mission data readouts have been successfully completed.

(3) FV 4422 TIVOLI III. This system reentered on 9 November 1971 after 20 months of operation. The system was fully operational at reentry. The system engineering tests, which are normally performed during the last few days of orbital life, were deleted in favor of operational tasking up until the time of reentry.

(4) FV 4423 TOPHAT I. Over 4,600 readouts have been accomplished by TOPHAT I, which is in its thirteenth month of operation. Although the system tasking remains extremely heavy, the performance remains flawless.

(5) FV 4427 ARROYO. The ARROYO system, which was launched from a CORONA host vehicle on 10 September 1971, performed perfectly for its initial 31 days on orbit. On 11 Oct 1971 a payload failure occurred in the receiver synthesizer which has terminated all further data collection. Attempts to correct this malfunction have included (1) purposely allowing the spacecraft to achieve very cool and above-normal temperatures, and (2) dynamic tests wherein the spin axis imbalance of the system has been purposely increased, and the spin rate of the system increased. These have failed to correct or alter the payload anomaly.