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KEYHOLE CHANNELS JOINTLY

NRL SPECIAL PROJECTS-CONTROL NUMBER

NRL BTK-000121-73

DATE:  
12 JUN 73

KQ 7/5/94

ORIGINATOR PM-16			SERIAL NO. BYE 55323/73	ENCLOSURES (1) LIST OF ATTENDEES (2) TOG MEETING AGENDA (3) POPPY COLL HIGHLIGHTS (4) RESULTS OF ON ORBIT ERP CALIB (5) MSG 221320Z MAY 73
DATE REC'D 13 JUN 73	TICKLER DATE -----	COPY NO. 10, 11	RECEIPT NO. HAND CARRIED FM SPO	
SUBJECT TECH OPS GROUP (TOG) MEETING; REPORT OF			DIST INFO	

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7030	Send to 11		RD Mayp	9-24-73	
			F	9-26-73	
1225			WOB	6/21	

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B121-73



11



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I-INFORMATION  
C-COMMENT  
R-RETAIN  
E-EVALUATION

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(OVER)

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# BYEMAN-TALENT-KEYHOLE

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cleared for the specific projects;

**EARPOP**

.....

.....

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GROUP 1  
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HANDLE (S) NATIONAL RECONNAISSANCE OFFICE, PROGRAM C  
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 WASHINGTON, D.C.  
 OFFICE OF THE DIRECTOR

PM-16-5

12 JUN 1973

MEMORANDUM FOR: DIRECTOR, NRO STAFF (SS4, SS4A AND SS7)  
 DIRECTOR, NATIONAL SECURITY AGENCY (W24 AND WE4)  
 DIRECTOR, CENTRAL INTELLIGENCE AGENCY (OSI)  
 COMMANDER, NAVAL SECURITY GROUP  
 CHIEF OF NAVAL OPERATIONS (OP094W)  
 DIRECTOR, NAVAL RESEARCH LABORATORY (1000 AND 7030)

Subj: Technical Operations Group (TOG) Meeting; report of

Encl: (1) List of Attendees  
 (2) TOG Meeting Agenda  
 (3) POPPY Collection Highlights  
 (4) Results of On Orbit ERP Calibration  
 (5) [ ] 221320Z May 73, Cite 0612, Subj: Mission 7107 Phase V  
 Engineering Evaluation Wrap-Up

1. A POPPY TOG meeting was held at 0930, 24 May 1973 at Naval Security Group (NSG) Headquarters. A list of attendees and the meeting agenda are forwarded as enclosures (1) and (2).

2. The following specific items were discussed:

a. 7107 Status: (NRL)

Recent power balance actions have produced the desired effect on 7107 satellites. The power level has stabilized above 11.5 volts. No further action is planned with regard to satellite power. [ ] will continue to monitor status.

The current satellite separation is [ ]. Since the last TOG meeting, D was thrust to maintain the desired 65± 5 NM for [ ]. In about three weeks another thrusting maneuver is planned to regulate the [ ] to maintain the [ ] desired separation. [ ] is the optimum desired by NSA (W24).

b. 7107 Collection Highlights: (NSG)

Enclosure (3) was submitted as a summary of activity since the previous TOG meeting.

c. 7107 Processing Highlights: (NSA)

The NSA representative stated that significant information had been gleaned from processing POPPY data on the following emitters:

Classified By BYEMAN.1

Exempt From GDS of Executive

Order 11652 Exemption Category

Warning Notice - Sensitive

Intelligence Sources and

Methods Involved

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[ ] An instance of this emitter operating in what is probably a target acquisition mode has been observed. In addition to the normal circular scan, a bi-directional scan was observed.

*John F.  
Jim O.  
Steve R.*

Recently, [ ] has reported several intercepts of what appears to be random, but cyclic, noise in the 14.8 to 15.1 GHz frequency band. Four cases have been reported in which the cyclic rate has shown a 3.1 second period normally (like scan), with 4.7 and 5.7 second periods also seen. The other common factors are that this phenomenon has always been observed in C satellite, using the C downlink, when the satellites are under RETEP tasking. On three occasions the satellite has been over the UK and one one occasion it was north of the UK. The NSA representative asked for reports of any further observance of this phenomenon, and also asked for help in determining the cause if the noise is internal to the system.

The SLM data problems that grew out of the satellite power balance situation discussed at the previous TOG meeting have been solved by the NRL supplied satellite attitude plots. The NRL is currently making these plots available for all collections, whether SLM is tasked or not. The NSA representatives requested that the computer printouts, in addition to the plots, be supplied, and also requested a full set of attitude data for the on-orbit calibration passes. The NRL representatives promised to provide the information requested.

The NSA representatives also requested that all the sites forward the computer printouts from the on-site processing of SLM collections when the tapes are sent. [ ] is already doing this and it greatly aids the NSA effort.

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Subj: Technical Operations Group (TOG) Meeting; report of

d. On Orbit Calibration: (NSA)

Enclosure (4) was presented as the analytic result of the March calibration effort. Orbit 6477 produced a  $\Delta$  ERP that leads the NSA analysts to speculate that the 115.0 dbm shown as XMTD power is a misprint, and should be 110.5 dbm. Because of the large number of samples on this orbit, the Overall Bias is severely affected by this number and so NSA is querying the West Coast to establish the validity of the 115.0 reading. } ?

The NSA desires to perform another calibration (scheduled quarterly) in the 11 to 15 June time frame. A message will be sent to all concerned.

e. Engineering Evaluation: (NRL)

Enclosure (5) was cited as being the report of the recent evaluation at [ ]

A short amplification of the [ ] collection test was given wherein it was explained that the telemetry link with 7106C lasted only 30 to 40 seconds at most. Attempting to activate 7106C with inadequate synchronization led to the activation of this satellite in the "unique" mode and a subsequent high power drain for approximately two orbits before [ ] was able to correct this condition. 7106C has now recovered, however, and the NRL representatives stated that a similar attempt at [ ] intercept could be made at [ ] during the next engineering evaluation, on a not-to-interfere basis, scheduled tentatively for November, 1973.

The NRL representatives brought up the point that, since all satellite attitude data is now being processed, some continuing statistical analyses on the correlation between aspect and satellite command problems might be undertaken. In particular, 7107C has recurring data link option problems that might be related to orientation. The NSG representatives stated that the sites are including all data link problems in the Semaphore Reports. NRL can use these data to determine orientation.

The NRL representatives, at NSG request, stated that serious negotiations are underway to acquire, by contract, a new technical representative for [ ]. The new man will almost certainly be an HRB Singer employee.

f. New SORS Guidance: (NRO SOC)

The SOC representative gave a short presentation on the new POPPY Mission Guidance which was recently approved by SORS. The previous version had not been changed since the launch of 7107. The latest Mission Guidance contains the following:

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(1) Priorities for Emissions Guidance (PEGS), which is the output of a standing committee under SORS for all overhead SIGINT systems. In the previous version, collection priorities were inherent to the Mission Guidance.

(2) New guidance for rapid re-direction of POPPY. This procedure has been tacitly in effect for some time but is now formalized as a SORS/NRO operating mechanism.

The PEG promulgated by the standing committee changed the POPPY collection priorities significantly. It is broken into two geographic areas of the world: East and West of 90° east longitude. The West sector guidance provides collection priorities for [ ] and the East sector covers [ ]

A summary comparison of current Mission Guidance, Current Tasking and changed mission guidance, by 7107 rf band was presented. In the eighteen months that 7107 has been active, tasking has diverged somewhat from the recorded Mission Guidance, particularly to intercept emitters of ocean surveillance interest. The new guidance recognizes this difference, but the effect overall will be to the detriment of ocean surveillance efforts. An analysis of the band in which [ ] intercepts occur shows the following (in percent of total collection):

	<u>Current Mission Guidance</u>	<u>Current Tasking</u>	<u>New Mission Guidance</u>
East	2.6	11.1	4.3
West	2.7	11.2	4.2

The reason that the [ ] band has been so active in current tasking is that the Navy had established a requirement for almost continuous collection of this band, as the most useful ocean surveillance band. Recent SORS deliberations have apparently not maintained this position.

g. Revised Reindeer Reports Control Manual: (NRO SOC)

The POPPY system is currently scheduled for installation of SOCOMM (NRO Black Net) circuits early in FY 74. Operational procedures on this net are currently governed by two documents. The SOCOMM Manual is published by the USAF Communications Squadron that supports this system. It details addressing mechanisms and physical security procedures. The Reindeer Reports Control Manual (RCM) currently provides standardized message formats, including the specification of addressees for each format and some actual text appropriate to the subject. This RCM is administered by the NRO SOC.

The NRO SOC representative presented a proposed version of the current Reindeer RCM that includes the POPPY field sites and asked that the cognizant organizations review the draft to ensure that their requirements will be satisfied.

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Subj: Technical Operations Group (TOG) Meeting; report of

3. The next TOG meeting is scheduled for 21 June 1973 at the NSA.

*R. K. Geiger*  
R. K. GEIGER

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Approved for Release: 2024/06/14 C05026402

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CONTROL SYSTEMLIST OF ATTENDEES

PM 16 (SPO)

NRL

NSG

NSA

NRO SOC

OPNAV

Mr. Lawton  
Mr. Frankovic

LT Morgan

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HANDLE VIA  
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CONTROL SYSTEMS JOINTLYTOG MEETING AGENDA

7107 Status

7107 Collection Highlights

7107 Processing Highlights

On-Orbit Calibration

Engineering Evaluation

New SORS Mission Guidance and  
Impact on Collection OperationsRevised Reindeer Reports Control  
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## POPPY COLLECTION HIGHLIGHTS

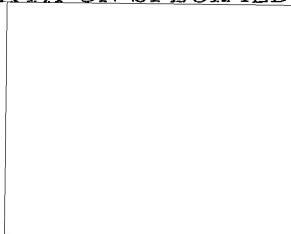
ELECTRONIC ORDER OF BATTLE:

SINCE THE LAST TOG WE'VE HAD 39 LOCATIONS REPORTED UNDER PROJECT FLACOR TASKING. THEY CONSISTED OF 19 SA-6 LOCATIONS FROM [ ] AND 18 SA-6 AND TWO SA-2 LOCATIONS FROM [ ]

ON 22 MAY 73 [ ] REPORTED THE LOCATION OF AN SA-X-8 EMITTER FROM THE AREA OF IZHEVSK, USSR. THIS WAS THE FIRST LOCATION REPORTED BY THE SYSTEM FROM THIS AREA. WE HAVE NOW ACCOMPLISHED LOCATIONS OF SA-X-8 EMITTERS IN FIVE DIFFERENT AREAS.

TECHNICAL INTELLIGENCE:

THE SITES CONTINUE TO OPERATE UNDER SPECIAL COLLECTION TASKS FOR COLLECTION OF SLM DATA ON SPECIFIED EMITTERS. LAST MONTH SLM DATA WAS COLLECTED ON:



INCREASED EMPHASIS HAS BEEN PLACED ON THE COLLECTION OF DEVELOPMENTAL SIGNALS [ ] THIS EMPHASIS HAS BEEN DIRECTED AGAINST SOVIET MAJOR COMBATANTS PRESENTLY CONDUCTING ASW OPERATIONS IN THE NORWEGIAN SEA. TASKING ADJUSTMENTS HAVE BEEN MADE AT [ ] AND [ ] TO FULFILL THE REQUIREMENTS FOR COLLECTION AGAINST THESE DEVELOPMENTAL EMITTERS.

OCEAN SURVEILLANCE:

DURING PERIOD 7-14 MAY, IN WHICH U.S. VESSELS CONDUCTED SILVER FOX OPERATIONS IN THE BLACK SEA, [ ] REPORTED 57 LOCATIONS OF SOVIET SURFACE VESSELS IN THE BLACK SEA. 44 OF THE LOCATIONS WERE [ ] EMITTERS FROM SOVIET MAJOR COMBATANTS. THE U.S. VESSELS WERE SHADOWED AT VARIOUS TIMES BY THE LENTRA CLASS AGI GS-43 AND A BULGARIAN RIGA DESTROYER. MAJOR SHADOWING VESSEL, WHICH CONDUCTED CONTINUOUS SHADOWING OPERATIONS, WAS THE SOVIET SAM KOTLIN DDG 360. [ ] ACCOMPLISHED 11 LOCATIONS OF A [ ] RADAR WHICH WAS EQUATED TO THE KOTLIN AND THROUGH THIS ESTABLISHED A NEW PRF RANGE OF 670 PPS FOR THIS VESSEL. NO PROBLEMS WERE ENCOUNTERED USING PRF TO HULL CORRELATION TECHNIQUES AGAINST THE [ ] EMITTER ON THE KOTLIN WHEN VESSEL WAS OPERATING NEAR THE BOSPHORUS AND IN THE SOUTHERN BLACK SEA. CORRELATION PROBLEMS WERE ENCOUNTERED WHEN U.S. VESSELS AND THE KOTLIN MOVED INTO THE NORTHERN BLACK SEA, AS SEVERAL [ ] CARRIERS WERE OPERATING IN THE VICINITY WITH [ ] PRF VALUES THE SAME AS, OR SIMILAR TO THAT OF THE SHADOWING KOTLIN.

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OTHER THAN THE SILVER FOX OPERATIONS, [ ] ACTIVITY CONTINUES AT A MODERATE LEVEL FROM OUT OF AREA COMBATANTS IN THE MED AND IS LIGHT IN THE FAR EAST. [ ] REPORTING IS HEAVY FROM NORTH FLEET AREA BECAUSE OF THE ASW OPERATIONS PRESENTLY BEING CONDUCTED IN THE NORWEGIAN SEA. THERE ARE PRESENTLY EIGHT [ ] TARGET COMBATANTS OPERATING OUT OF AREA IN NORWEGIAN SEA. ONE MAJOR COMBATANT, KOTLIN DDG 345, IS OUT OF AREA IN THE CAPE VERDE ISLANDS..

TWO NEW CONSTRUCTION COMBATANTS; KRESTA II CLGM 597 AND KRIVAK DDGSP 500, HAVE COMMENCED SHAKEDOWN OPERATIONS IN THE BALTIC. DURING SHAKEDOWN OPERATIONS, [ ] INTERCEPTED TWO [ ] PRF'S FROM THE BALTIC, 700 PPS AND 699.434 PPS, WE SUSPECT THESE NEW PRF'S EQUATE TO THE KRIVAK AND THE KRESTA. THE 699.434 PPS PRF IS A TRADE MARK OF THE NEWER KRESTAS BEING FITTED WITH THE NEWER, MORE STABLE [ ]

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RESULTS OF ON ORBIT ERP CALIBRATION  
CONDUCTED 26 - 31 MARCH 1973

ORBIT	RF	MEAS	XMTD	Δ ERP	NUMBER OF SAMPLES
6417D	8000	111.8	111.9	- 0.1	1
6422D	8000	112.7	111.0	+ 1.7	1
6431A	6500	109.0	112.8	- 3.8	3
B	6500	110.6	112.8	- 2.2	1
6436A	6500	112.5	111.3	+ 1.2	2
B	6500	112.6	111.3	+ 1.3	2
6449D	9200	115.2	114.4	+ 0.8	6
6458A	6500	109.9	111.6	- 1.7	5
	6500	113.3	111.6	+ 1.7	4
6463D	9200	114.8	115.2	- 0.5	7
6472A	6500	111.9	113.3	- 1.4	4
B	6500	112.8	113.3	- 0.5	1
6477A	6500	109.7	115.0	- 5.3	8
B	6500	111.7	115.0	- 3.3	7

RMS Error (excluding orbit 6477 AB) 1.9 dB

Overall BIAS (Excluding orbit 6477AB) - .1 dB

RMS Error (including orbit 6477 AB) 2.6 dB

Overall Bias (including orbit 6477 AB) - 0.8 dB

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~~TOP SECRET~~ 221320Z MAY 73 CITE [ ] 2612.  
ROUTINE COGNAC JUNO CONCH INFO Wahoo CONQUER WHIG CONCERT  
EARPOP  
SUBJ: MISSION 7107 PHASE V ENGINEERING EVALUATION  
WRAP-UP

1. [ ] PERSONNEL HAVE COMPLETED A SYSTEM EVALUATION  
AT [ ] SYSTEM HEALTH REMAINS STABLE. SPACECRAFT  
VOLTAGES WERE CHECKED ON EVERY REV BEFORE PERFORMING  
ANY TESTS AND IN EVERY CASE THE VOLTAGE READINGS WERE  
GOOD. RECENT CORRECTIVE ACTIONS TAKEN BY [ ] APPEAR  
TO BE EFFECTIVE AT THIS TIME.

2. THE TIMER WAS CHECKED AGAIN IN THE 10 MINUTE DELAY  
MODE. THE INCREMENT WAS MEASURED AND PAYLOAD ACTIVATION  
WAS OBSERVED.

PAYLOAD	NR. OF OBSERV'S	AVERAGE	HIGH	LOW
7107A	6	8 MIN-57 SEC	9-15	8-37
7107B	6	9 MIN-28 SEC	9-29	9-24
7107C	2		9-41	9-13
7107D	2		8-59	8-10

PAGE 2 [ ] 0512 ~~TOP SECRET~~

3. ALL BAND OPTIONS WERE EXAMINED FOR ALL FOUR PAYLOADS.  
THEIR PERFORMANCE WAS VERY DEPENDENT UPON SUNLIGHT CONDI-  
TION. SOME OF THE BAND OPTIONS THAT WERE INOPERATIVE IN THE  
LAST ENGINEERING EVALUATION FUNCTIONED PROPERLY.

THOSE BAND OPTIONS THAT WERE INOPERATIVE DURING BOTH  
SUNLIGHT AND DARKNESS CONDITIONS WERE: 7107C; DL 13

OPT 1, DL 10 OPT 2, AND DL 18 OPT 2.

7107D: DL 10 OPT 1, DL 21 OPT 1, DL 14 OPT 2 AND DL 19

OPT 2. THOSE BAND OPTIONS THAT WERE INOPERATIVE DURING

DARKNESS ONLY WERE: 7107C: DL 8 OPT 1, DL 4 OPT 2,  
AND DL 13 OPT 2. 7107D: DL 8 OPT 2, DL 10 OPT 2, DL 12

OPT 2, DL 13 OPT 2, AND DL 20 OPT 2.

NO OTHER PREVIOUSLY REPORTED BAND OPTION MALFUNCTIONS

WERE OBSERVED DURING THE EVALUATION. NO PROBLEMS

WERE EXPERIENCED WITH 7107A AND 7107B. SLM OPTION TWO

ON 7107C AND SLM OPTION ONE ON 7107D ARE STILL INOPERAT-  
TIVE.

4. DURING 3 3;-07-589,, FIVE OPPORTUNITIES EXISTED  
FOR SIMULTANEOUS ,

BALL COLLECTION OF 7106C WITH 7107C. SITE  
PERSONNEL WERE ABLE TO ACQUIRE 7106C TELEMETRY FOR ONLY  
A SHORT INTERVAL OF TIME AND WERE UNABLE TO ACTIVATE

PAGE 3 [ ] 2612 ~~TOP SECRET~~

ANY 7106C DATA LINKS, EVEN WHEN INTERROGATING IN THE  
BLIND. THIS SUBJECT WILL BE DISCUSSED AT THE NEXT  
TOG MEETING.

5. [ ] PERSONNEL WISH TO THANK [ ] PERSONNEL FOR  
THEIR COOPERATION DURING PHASE V OF THE EVALUATION.  
E-2 IMPDET.

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