CRC (TICKLER)

2.

NRL SPECIAL PROJECTS CONTROL NUMBER

NRL B-357-74

~~NOP SPOC~~ - TRIDENT VIA BUK CONTROL SYSTEMS

DATE 11DEC74

ORIGINATOR	SERIAL NO.	ENCLOSURES
PMK 106	BYE 59,981-74	(1) AGENDA (2) LIST OF ATTENDEES (3) MINIMUM DAILY VOLTAGE PLOT (4) COLLECTION HIGHLITS (5) PROCESSING HIGHLIGHTS (6) PRELIM RESULTS OF ~~POPPY CALIBRATION~~

DATE REC'D	TICKLER DATE	COPY NO.	RECEIPT NO.
12/24/74		10, 11	WA 80,796

SUBJECT

POPPY TECH OPS GRP (TOG) MEETING: REPORT OF

DIST INFO

☐ BASIC DOCUMENT ON R/S _____

☐ BASIC DOCUMENT NOT HELD. DESTROY.

ROUTE TO	*	CY NO.	W/ ENCL	SIGNATURE	DATE OUT	DATE RETURN
1000						
7000						
7030		11		RDMayo	1/4/75	
1225		10				
~~7033~~				[illegible] 1/15	1/30	

CODES HAVING PRIMARY INTEREST CHECK ONE

☐ RETAIN INDEFINITELY. (REFERENCE VALUE).

☐ RETAIN _____ MONTHS. (INFO MATERIAL HAVING ONLY TEMPORARY REFERENCE VALUE).

☐ DESTROY AFTER ROUTING. (NO FURTHER REFERENCE OR INFORMATION VALUE).

DESTRUCTION REPORT NO.	FINISH FILE
Cy 11	7.2

NRL INCOMING DOCUMENT

B357-74

11

BYE-59981-74

Transferred 8-21-05 NRD

*A-ACTION
I-INFORMATION
C-COMMENT
R-RETAIN
E-EVALUATION

TURN THIS ROUTE SLIP TO NRL SPECIAL PROJECTS OFFICE, ROOM 222, BLDG. 43.
DO NOT ROUTE TO OTHER SECTION OR BRANCH.

TION TAKEN BY

CONTROL RECORD. NDW-NRL-5216/1005 (REV. 3-72)

~~TOP SECRET~~

CONTROL NO. Bye 59981/74 cy 11

REFERRED TO OFFICE	RECEIVED			RELEASED		SEEN BY	
	SIGNATURE	DATE	TIME	DATE	TIME	NAME & OFFICE SYMBOL	DATE
NRL (7030)							

(OVER)

Handle Via Indicated Controls

BYEMAN- TALENT -KEYHOLE

Access to this document will be restricted to those persons cleared for the specific projects;

EARPOP

....

....

WARNING

This document contains information affecting the national security of the United States within the meaning of the espionage laws U. S. Code Title 18, Sections 793 and 794. The law prohibits its transmission or the revelation of its contents in any manner to an unauthorized person, as well as its use in any manner prejudicial to the safety or interest of the United States or for the benefit of any foreign government to the detriment of the United States. It is to be seen only by personnel especially indoctrinated and authorized to receive information in the designated control channels. Its security must be maintained in accordance with regulations pertaining to BYEMAN-TALENT-KEYHOLE Control Systems.

NRL B-352-74

~~TOP SECRET~~

GROUP 1
Excluded from automatic downgrading and declassification

~~TOP SECRET~~ ZARF

HANDLE VIA BYEMAN CONTROL SYSTEM

NAVY SPACE PROJECT OFFICE
~~(S)~~ NATIONAL RECONNAISSANCE OFFICE, PROGRAM C
WASHINGTON, D.C.

OFFICE OF THE DIRECTOR

EARPOP ZARF

PME-106-5/1c

DEC 11 1974

MEMORANDUM FOR THE DIRECTOR, NATIONAL SECURITY AGENCY (A81,R24,W2 & W3
DIRECTOR, NRO STAFF (SS4, SS4A & SS7)
DIRECTOR, CENTRAL INTELLIGENCE AGENCY (OSI)
DIRECTOR, NAVAL RESEARCH LABORATORY (1000 & 7030)
CHIEF OF NAVAL OPERATIONS (OP955)
COMMANDER, NAVAL SECURITY GROUP COMMAND

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

Encl: (1) Agenda
(2) List of Attendees
(3) Minimum Daily Voltage Plot
(4) Collection Highlights
(5) Processing Highlights
(6) Preliminary Results of POPPY Calibrations

1. A POPPY TOG meeting was held at the Naval Research Laboratory at 0930 on 21 November 1974. The agenda and a list of attendees are forwarded as enclosures (1) and (2).

2. The following specific items were discussed:

a. Status. (NRL)

The satellites remain healthy and are performing as expected, even though extended low sun exposure (72% today) continues through CY 74. The Minimum Daily Voltage Plot (enclosure (3)) shows very stable power over the last few weeks. This stability can, at least in part, be attributed to the great care being exerted by the NSG sites in their satellite command procedures.

Current satellite spacing is:

[redacted]

More instances of "dropout" of data link options, as discussed at previous TOG meetings, have occurred, and some crosstalk has also recurred. All systems will be checked at the next Engineering Evaluation, now scheduled for January at

[redacted]

HANDLE VIA BYEMAN-TALENT-KEYHOLE CONTROL SYSTEMS JOINTLY

Warning Notice - Sensitive Intelligence Sources and Methods Involved

HANDLE VIA BYEMAN CONTROL SYSTEM

CLASSIFIED BY BYEMAN · 1 EXEMPT FROM GENERAL DECLASSIFICATION SCHEDULE OF EXECUTIVE ORDER 11652 EXEMPTION CATEGORY 5B2 DECLASSIFY ON IMP DET.

~~TOP SECRET~~ ZARF

B-357-74

CONTROL NO BYE 59,981-7
COPY N OF 14 COPIES
PAGE 1 OF 3 PAGES

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

The NRL representatives again stressed the continuing need for care in observing satellite health and welfare precautions. Voltage readings are still required on each pass and [redacted] maintains a high level of monitoring.

The NSG representatives reported that the sites are observing lower voltage readings than are being recorded by the NRL readout. Also [redacted] has reported receiving some pulse widths that should not be generated within the system. The NRL representatives agreed to coordinate on both of these items.

It was discussed that satellite yaw may be a contributor to some reduction in data that is being experienced in an NSG study on [redacted] intercepts, since full omni-directional coverage is not available in this range. The NRL representatives estimated that the "yaw" is actually a rotation of a few revolutions per day. No specific way of determining the actual impact on [redacted] intercepts was resolved.

b. Collection Highlights. (NSG)

Enclosure (4) was presented by the NSG representatives.

The 7107CD collection band tasking question that was discussed at the October TOG meeting has resulted in the designation of task group C44, which has been used on some test collections. The tapes have just been received and processed but data have not yet been analyzed.

c. Processing Highlights. (NSA)

Enclosure (5) was presented by the NSA representatives. [redacted] of W34).

d. Preliminary Results of POPPY Calibrations. (NSA)

Enclosure (6) was presented by the NSA representatives [redacted] of R24).

It was discussed that a major contributor to the variations seen in the data results is inaccurate antenna pointing. It is generally not possible to ascertain that any two of the

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

readings can be ascribed to the same part of the emitter beam. This is a major technical problem, particularly when no high grade feedback is available.

e. Engineering evaluation. (NRL)

The next scheduled engineering evaluation of POPPY is planned for [redacted] in January. The normal procedure requires three days of suspension of operations. The entire satellite system (all options) and the ground station are evaluated with emphasis on the reported system failures and anomalies. Specific items are the drop-out link options, crosstalk and a high incidence of [redacted]

The discussion turned to the planned termination of operations at [redacted] in March of 1975, due to transition to [redacted] It may be more effective to delay and/or conduct this evaluation at some other site. The SPO representatives agreed to staff the requirements and to resolve the time and place for the next engineering evaluation.

3. The next TOG meeting will be hosted by the SPO at the Naval Research Laboratory on 19 December 1974.

R. K. GEIGER

~~TOP SECRET~~ EARP/ ZARF

AGENDA

STATUS

COLLECTION HIGHLIGHTS

PROCESSING HIGHLIGHTS

CALIBRATION RESULTS

ENGINEERING EVALUATION

HANDLE VIA
BYEMAN-TALENT-KEYHOLE
CONTROL SYSTEMS JOINTLY

~~TOP SECRET~~ EARP/ ZARF

Warning Notice - Sensitive Intelligence Sources and Methods Involved

HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY

Enclosure (1) to BYE 59,981-74

Page 1 of 1 Pages
Copy ___ of ___ Copies

~~TOP SECRET~~ EARP

LIST OF ATTENDEES

SPO: [redacted]

NSA: [redacted]
Mr. Gallagher
[redacted]

NRL: Mr. Mayo
Mr. Lawton
[redacted]

NRO/SOC: [redacted]

NSG: CDR Cole
[redacted]

Warning Notice - Sensitive Intelligence Sources and Methods Involved

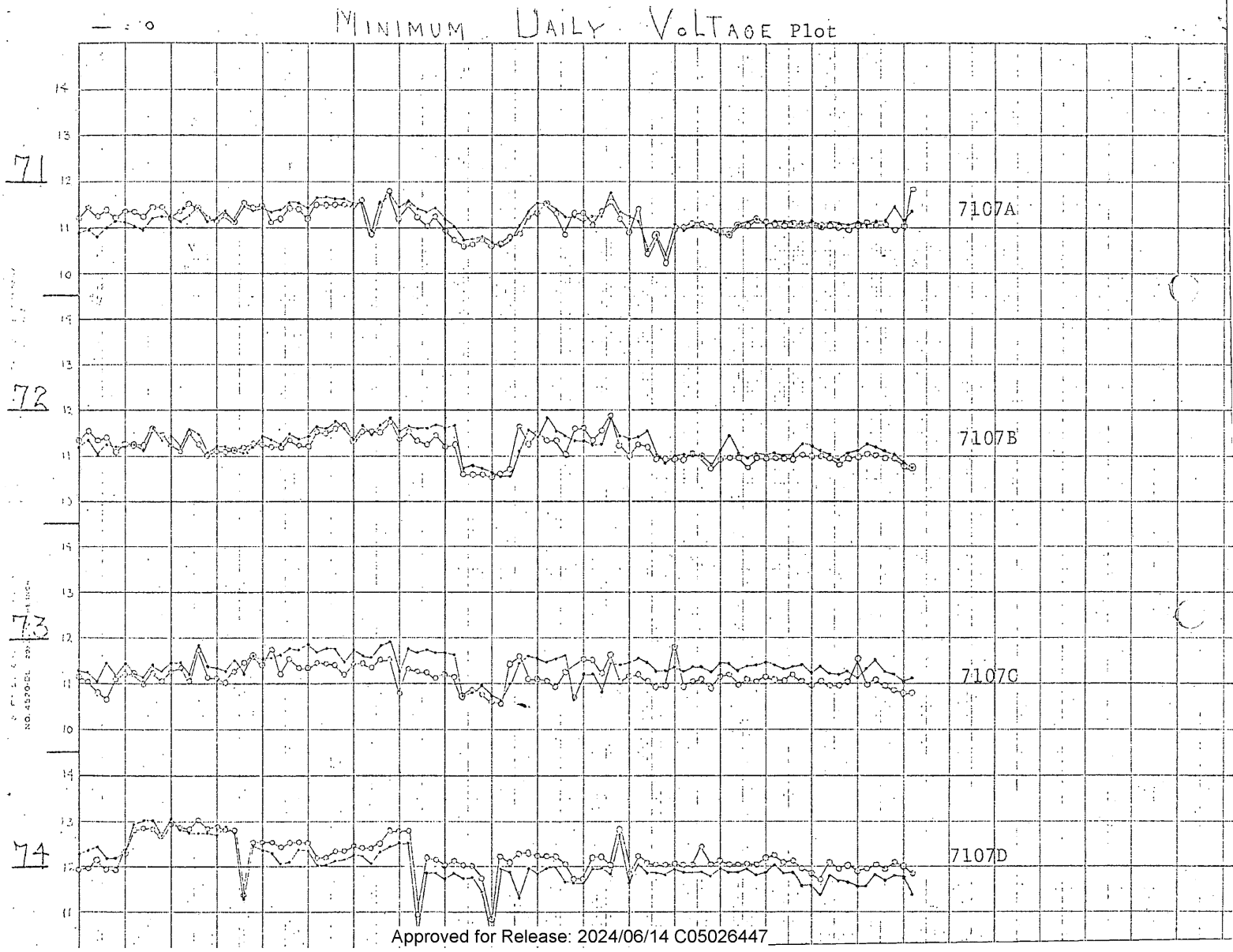
HANDLE VIA BYEMAN-TALENT-KEYHOLE CONTROL SYSTEMS JOINTLY

~~TOP SECRET~~ EARP ZARF

Handle Via BYEMAN Control System

Enclosure (2) to BYE 59,981-74

Page 1 of 1 Pages
Copy [illegible] of [illegible] Copies



COLLECTION HIGHLIGHTS

OCEAN SURVEILLANCE: (30 Oct - 18 Nov 74)

Since the last TOG meeting, there have been a total of two thousand six hundred ninety [redacted] locations. One hundred forty two of these were equated to major combatants and/or auxillaries. One hundred eighty six intercepts were combatant associated but could not be correlated to a specific hull. Eighteen intercepts were of [redacted] emitters. Two thousand three hundred forty four intercepts of merchant associated radars were reported.

1. [redacted] activity of major combatants was down due to limited OOA movements and general stand down for Soviet holidays. Those ships OOA were either mostly at anchorage or in ports.

2. Both [redacted] monitored the transit of the Kanin DDG's Boykiy and Zorkiy from the Barents Sea to the Skagerrak (Oslo, Norway).

3. SSOCS Komarov entered the Mediterranean after transiting from the North Atlantic. This leaves the SSOCS Korolev in position off the coast of Nova Scotia.

4. The four intercepts of [redacted] in the Baltic Sea could possibly be the Kresta I CLGM Vice Admiral Drozd, which has been reported active after nearly two years in the Leningrad shipyard for overhaul.

5. [redacted] reflect the Kresta II CLGM's Admiral Nakhimov and Admiral Makarov, and AOR Dnestr in the process of an Atlantic transit from Cuba.

6. Kynda CLGM Groznyy transited from the Black Sea into the Med and is positioned off the Northeast coast of Cyprus along with the Kashin DLG Krasny Kavkaz.

7. The Sverdlov CL Dmitriy Pozharskiy was intercepted once (East China Sea), enroute from the Sea of Japan to the Indian Ocean.

Technical Intelligence and EOB: (30 Oct - 18 Nov 74)

1. PROJECT FLAVOR: Fourteen intercepts of SA-6 emitters were reported since the last TOG meeting. Nine were geolocated to [redacted] With increased tension in the Middle East, there has been an increase in processing/reporting priority of project target emitters, [redacted] to immediately following priority one [redacted] items. The [redacted] radar is now being processed as a priority one target on the SEL 810 system above all other Flavor and [redacted] targets. Reporting timeliness for Project Flavor has been ranging anywhere from thirty to sixty minutes depending upon the degree of processing difficulty.

2. Twenty five revs were collected for signal level measurement (SLM) data on specific emitters. Three target emitters were noted: A [redacted] with a binary word count of eight and two [redacted] with binary word counts of four.

3. On the 21st of October, [redacted] reported an intercept of [redacted] This is the guidance signal associated with the SA-N-3 missile system. This is the first intercept of this signal by the POPPY mission.

4. On the 27th of October an intercept of [redacted] was equated by [redacted], to the new [redacted] The PRF equated to the ninety sixth divisor of the 323.23 KHZ (.25NM) crystal. The signal was not geolocated.

5. On 18 November, [redacted] intercepted a probable [redacted] located in the White Sea (6600N/03412E). PRF was 1122.332 and equates to the two hundred eight eighth divisor of the 323.2 KHZ crystal.

6. On the 1st and 2nd of November, [redacted] reported what was believed to be the [redacted] emitter on the [redacted] Both intercepts of PRF/PRI equated to the two hundred eighty eighth countdown of the 323.2393 KHZ crystal. The signals were not geolocated.

~~TOP SECRET~~ ZARF

PROCESSING HIGHLIGHTS

1. [redacted] 3600-4050 MHZ Signal Similar to Soviet E Band Signals).

REF: Minutes of October TOG

It was mentioned at the last TOG that upon receipt of IPACS response to a query on signals of this type 17-200 intercept tapes would be turned over to Project Departure for furtheranalysis. Since then the response has been received and consisted of the following.

Included was a data base retrieval of all signals collected in the Pacific area since 01 Jan 70 with RF's 3600-4050 MHZ and PRF's 175-450 PPS. This retrieval revealed numerous signals with parameters identical to [redacted] The following analyst comments were also presented.

Although the data base retrieval did not reflect a very large number of intercepts, personal experience has indicated the possibility of a high RF [redacted] family emitter. IPAC ELINT analysts have personal knowledge of two occasions where operators reported [redacted] like emissions from NVN during 1970 with RF's of approximately 3000 MHz. These emissions were suspected at the time to be image or spurious signals. A check of the receiving equipment on the intercept aircraft (EB66C) revealed no malfunction and no image signal could be received from the local ATC (2800 MHZ) radar. These intercepts were reported as probable spurious signals. Sporadic intercepts from other collectors have also been reported and others have probably been discounted as spurious and image signals and not reported. An investigation to determine if a higher RF [redacted] type signal exists appears to be required. If this signal exists it may be from a new type radar or more likely be for frequency diversity during combat conditions from one or more of the [redacted] family emitters.

Pending receipt of digital tapes the signal will be forwarded to Project Departure.

2. Status of Current, Project Departure, Msn 7107 Analysis Tasks.

a. [redacted] unidentified signal 13-164 possibly [redacted] associated.

Draft analysis report is in progress and will be available for preliminary review shortly.

HANDLE VIA BYEMAN-TALENT-KEYHOLE CONTROL SYSTEMS JOINTLY

Enclosure (5) to BYE 59,981-74

Warning Notice - Sensitive Intelligence Sources and Methods Involved

~~TOP SECRET~~ ZARF

Page 1 of 3 Pages
Copy ... of ... Copies

b. [redacted] unidentified signal [redacted] associated.

Draft analysis report is complete and will be reviewed.

c. [redacted] unidentified signal [redacted] I Band multiple beam signal.

Analysis in progress.

d. [redacted] unidentified signal [redacted] 4050-4850 MHZ Band possibly [redacted] associated collected with SLM activated.

Analysis is in progress.

e. [redacted] 1012Z (TK EPL) unidentified PRC signal.

Analysis in progress.

f. [redacted] ABM associated signal intercepted scanning with SLM activated.

Analysis in progress.

3. Project Departure Future Tasks.

a. Project Departure will be tasked to perform digital analysis on the [redacted] intercept of the [redacted] (Head Lights) guidance signal (ref Oct TOG). The purpose of the task is to determine if any useful technical information can be derived from the intercept data.

b. [redacted] Recent intercept of two [redacted] emitters active simultaneously.

The purpose of the task is to determine the feasibility of radio fingerprinting based on simultaneous intercept of two emitters.

e. [redacted] unidentified signal [redacted] 815-970MHZ Band Possibly ESV/Telemetry associated.

Waiting digital tapes.

d. [redacted] unidentified signal [redacted] PRC I Band signal similar to [redacted] type radars.

Waiting digital tapes.

Handle via BYEMAN Control System

Warning Notice - Sensitive Intelligence Sources and Methods Involved

HANDLE VIA
BYEMAN-TALENT-KEYHOLE
CONTROL SYSTEMS JOINTLY

4. Project Departure Previous Task.

At the August TOG, information was presented concerning a test using Msn 7107 data to evaluate the effectiveness of a pulse position demodulator in finding pulse frequency modulated signals. As a result numerous PFM signals were found which could not be initially identified. As a result Project Departure was tasked to perform digital analysis on the signals.

The purpose of the task was to determine and compare Pulse Interval Modulation Parameters and identify the emitter if possible. The task has since been completed and the following is a summary.

Eleven intercepts of periodically-modulated PRI signals collected by Msn 7107 were observed. These signals are categorized as periodic PRI, rather than Random PRI, to emphasize the fact that the intervals varied vs. time in an easily recognizable, predictable, periodic manner. The signals observed here were all simple sinusoids with the exception of the 11th which was distorted in shape. Signal identification was provided where possible.

The effort in analyzing these signals was of value for developing an approach for analyzing future more complex and important non-friendly PRI modulated radars.

The report is currently being reviewed by W34.

PRELIMINARY RESULTS OF POPPY CALIBRATIONS

1. ITT (contract Departure) has finished analysis of the July 74 calibration. They will provide the peak ERP for each point of a pass and an ERP. vs. time plot for each pass.

2. ITT has started analysis of the Aug 74 calibration. The attitude data is needed for ITT to finish analysis of this calibration. The attitude data has been on order since 11 Oct.

3. ITT will publish their final report once the analysis of the Aug 74 calibration is completed.

The range of measurements from B ball (both bands) in Dec 73 was -6 to +7.6 db. In July 74 this range was from -1 to +2 db off the reported ERP, a considerable improvement.

Enclosure (6) to BYE 59,981-74

Page 1 of 2 Pages
Copy 1 of 1 Copies

8. From the data on the July 74 calibration, the following was compiled.

Orbit	RF		Delta (A,B)	Delta A, F91)
13183	5.6 GHz		2.5 db	0.25 db
	6.5 GHz		3.0 db	0.75 db
13193	5.7 GHz		1.3 db	1.1 db
	6.5 GHz		3.2 db	0.6 db

Comments:

a. On the average Ball B was within 0.675 db on the reported ERP.

b. Ball A on the average was within 2.5 db of ball B or 3.175 dn from the reported ERP.

c.

9. has drawn no conclusions from this preliminary data. conclusions and recommendations will be published after ITT completes its analysis. It is anticipated that preliminary results (i.e. rough draft of final report) will be ready by mid December and a final report published by 1 Jan 75.