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NRL SPECIAL PROJECTS CONTROL NUMBER

NRL 8-47-75

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BYE-59401-75

ENCLOSURES

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JOINT MILITARY OPERATIONS GROUP  
(JMO) REPORT NO. 12/19/74

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TOG(74

NRL INCOMING DOCUMENT



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(OVER)

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# BYEMAN-TALENT-KEYHOLE

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

*EARPOD*

*WA 89520*

.....

.....

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*NRL BTK 47-75*

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

OFFICE OF THE DIRECTOR

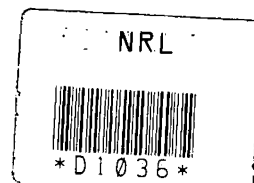
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JAN 22 1975

MEMORANDUM FOR: 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  
DIRECTOR, NATIONAL SECURITY AGENCY (A81, R24, W2&W34)

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) 7107 SLM (1974 reports)  
(6) Processing Highlights  
(7) Mission 7107 Calibration Data



1. A POPPY TOG meeting was held at the Naval Research Laboratory (NRL) at 0930 on 19 December 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 are currently in an extended period of low sunlight. Today's reading is 72%. The satellites will enter 100% sunlight on day 361 of this year and will remain there one month. There have been numerous occasions of low voltages requiring the satellites to be reset. NRL is currently examining the situation and will make a precautionary recommendation soon. A cutback in bands used (current) or a reduction in the number of stations during a pass are two alternatives. The NRL representative agreed to provide a recommendation via message before the next TOG meeting.

The NSG representative reopened the discussion started at the previous TOG meeting concerning the fact that the field sites are observing lower daily minimum voltages than are shown in enclosure (3), which is produced from the NRL daily readout of recorded data. The reason that NRL sees higher values is that the satellite recording device samples only once each 2.5 minutes, while the sites monitor continuously (2.5 second sample rate) during the pass. When the voltage approaches 10.88V the satellite is reset, and the NRL sample may not record the lowest reading

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

The NSG representative also reported that [ ] has experienced some malfunctions in satellite activation as a result of [ ] commanding another satellite system at a command up-link frequency near the POPPY frequency. The NRL representative agreed to research this problem and to provide a report at the next TOG meeting.

There have been several band options malfunctioning and these will be checked along with all band options at the next engineering evaluation at [ ]

Since the last TOG, [ ] has become active again although they have been experiencing some problems with the digital processing system.

Current spacing is:

[ ]

B. Collection Highlights. (NSG)

The NSG representative presented enclosure (4). The [ ] reported southwest of Gibraltar was equated to a [ ] this is the first equation to a specific [ ] by POPPY.

The NSA representatives added that, although emitter-to-hull correlations are low (approximately 10%) overall, the ratio is much higher (approximately 50%) on combatant radars on naval vessels operating OOA (out of area). NSOC will soon begin running on-line tests of correlations using the new software discussed at previous TOG meetings. Each OOA [ ] will be evaluated and NSOC correlations will be compared to field site correlations. When the testing phase is concluded, it is planned that field site correlations will be accepted (since they have been proven to be nearly 100% accurate) and only uncorrelated [ ] will be processed for correlations.

The NSA representatives also mentioned that POPPY SLM collection has been more effective than the field site reports indicate. The sites report whether a specific emitter, against which a collection effort was mounted, appears in the data; and the results tend to be discouraging. But the collected SLM tapes are further analyzed at NSA where "fallout" collection is exploited. Enclosure (5) is a listing of emitters for which POPPY (7107) has contributed SLM data in CY 74.

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

C. Processing Highlights. (NSA)

The NSA representatives provided enclosure (6). Careful scrutiny of the [ ] photograph shows that one side of the radar has three feed horns and the other side has two horns. Mr. Gallagher contributed that, on one observation, the data showed a 180° phase shift and the change in frequency simultaneously, possibly indicating that the opposite side had been activated. There are approximately seventy of these radars.

A POPPY Program history is being compiled by R244 and will soon be available.

The POPPY SOI list is under review and some reassignment, more site specific, will be forthcoming. In January, NSG will be asked to coordinate. [ ]

A recent [ ] update provided an automated capability, within the PAPS software, to generate the new single format land based emitter report. This format will be introduced soon, at all sites simultaneously.

D. Calibration Results. (NSA)

The July-August on-orbit calibration results were presented, and are summarized in enclosure (7). The conclusions currently drawn are that 7107A [ ]

E. Engineering Evaluation. (NRL)

NRL personnel will conduct an engineering evaluation at [ ] from January 6-10. Three days of down time (4 revs. per pair) will be required. The exact revs. are not yet known as the predictions are not yet available. A message will be sent as soon as this information is obtained.

All band options will be checked, including the ones that have malfunctioned since the last evaluation.

Site personnel, equipment and computer time will be required to assist the NRL team. This requirement will be coordinated with the NSG.

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Future engineering evaluations on POPPY will probably be conducted using [REDACTED], since the satellite performance is the major evaluation.

F. [REDACTED] (SPO)

It was pointed out that January provides some major milestones in the transition process. Maintenance training for the new system begins at [REDACTED] and many of the senior site personnel will be involved in the first stages of operator training. CNSG has provided message notification of the effect on operations. All users should be aware of the degrade in performance that is occurring due to transition activities - mostly personnel related at this point.

3. The next TOG meeting is scheduled for 31 January and will be hosted by the SOC at NSA,...

  
R. K. GEIGER

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STATUS

COLLECTION HIGHLIGHTS

PROCESSING HIGHLIGHTS

CALIBRATION RESULTS

ENGINEERING EVALUATION

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ENCLOSURE (1) to BYE59,401-75

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LIST OF ATTENDEES

SPO:

NRL: MR. FRANKOVIC

OPNAV:

NSA: MR. GALLAGHER

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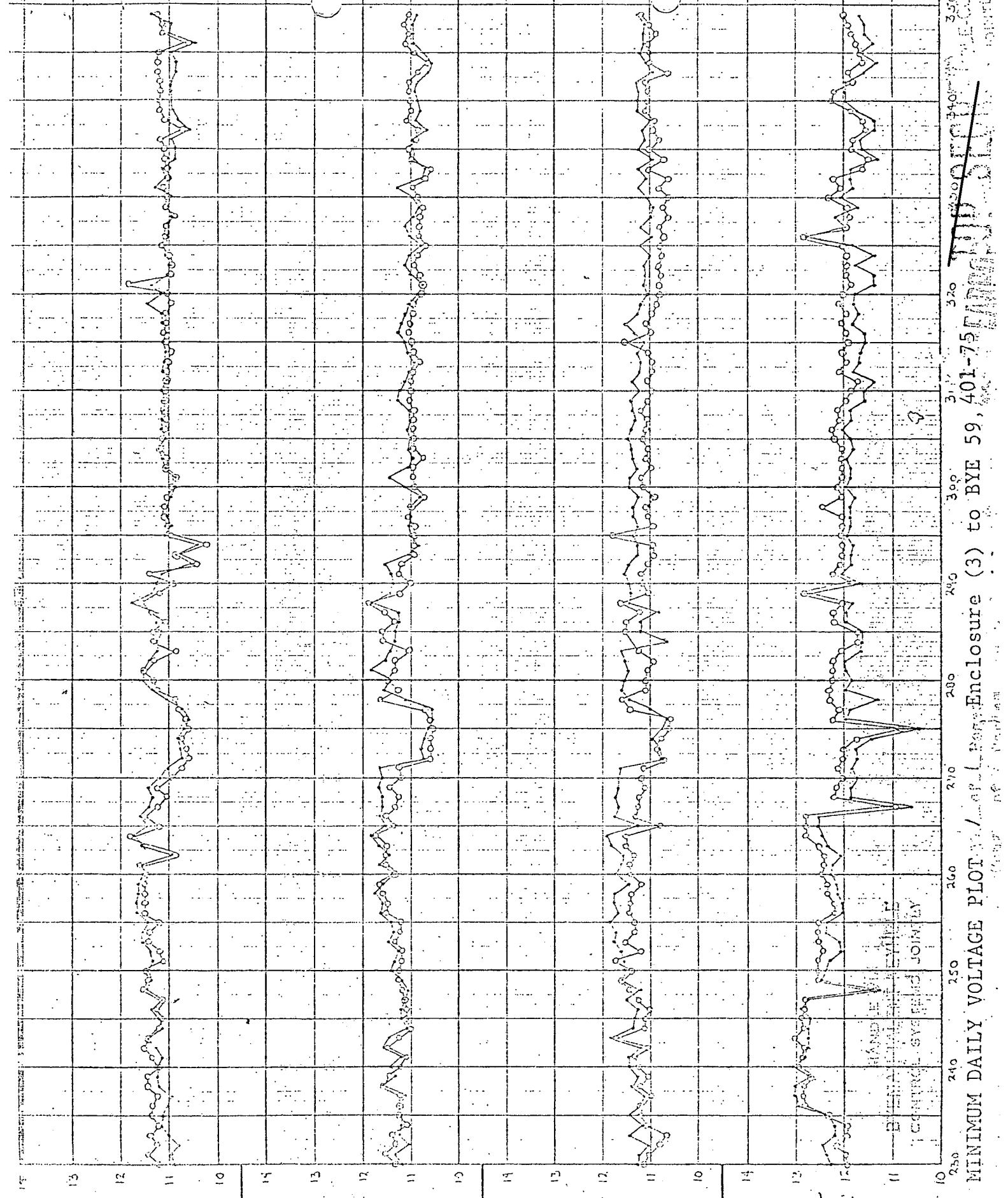
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Enclosure (2) to BYE-59,401-75

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MINIMUM DAILY VOLTAGE PLOT (3) to BYE 59, 401-75

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CONTROL SYSTEMS JOINTLYCOLLECTION HIGHLIGHTSOCEAN SURVEILLANCE: (19 Nov - 16 Dec 74)

Since the last TOG meeting, there have been a total of four thousand six hundred ten [ ] locations. Three hundred fifty eight of these were equated to major combatants and/or auxiliaries. Four hundred thirty three intercepts were combatant associated but could not be correlated to a specific hull. Thirty seven [ ] emitters were intercepted, including seven OOA; three in the English Channel, two in the Mediterranean, one in the Denmark Straits, and one southwest of Gibraltar. Three thousand seven hundred eighty two merchant associated radars were reported.

1. [ ] activity remained at a moderate level in the EUR/LANT areas, and low in the Pacific area during the reporting period.
2. Kresta II CLGM Admiral Makarov and AOR Dnestr have been operating in the Gibraltar area since their return from Cuba.
3. Kresta II CLGM Admiral Nakhimov, after splitting from the Makarov and Dnestr, transited north in the Atlantic and returned to NORFLT waters.
4. Kanin DDG's Boykiy and Zorkiy completed their transit to the Barents Sea, after a port visit in Oslo, Norway.
5. Moskva CHG Leningard, Ksahin DLG Skoryy, and AOR Boris Chilikin returned to the Med and eventually to the Black Sea, after conducting minesweeping operations in the Southern Suez Canal.
6. The Sverdlov CLCP Zhdanov returned to the Black Sea from the Med.
7. Primorye AGI Kavkaz exited the Black Sea and relieved Primorye AGI Krym of monitoring operations off the coast of Cyprus. AGI Krym has returned to the Black Sea.
8. Primorye AGI Zaporozhe is transiting north in the Atlantic, off the North coast of Scotland, probably enroute NORFLT waters.

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Enclosure (4) to BYE 59,401-75

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11. The [ ] intercept in the Denmark Straits also lacked scan and beamwidth peak characteristics of the [ ] radar. There were no subs known to be in the area, but the reported location is valid.

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TECHNICAL INTELLIGENCE AND EOB:

1. PROJECT FLAVOR: Eight [ ] were intercepted in support of task. Six of these were geolocated to [ ]
2. Sixty two revs were collected for Signal Level Measurement (SLM) with one [ ] target emitter being intercepted.
3. An intercept of a [ ] navigation radar, from the mid Atlantic on the 9th December was noted utilizing counter clockwise scan. Soviet radars are typically observed in clockwise scan; and this was the first intercept by [ ] of counter clockwise scan [ ] in a history of seventy eight intercepts. Counter clockwise scanning [ ] have been intercepted in the Pacific and by [ ] in the past. This intercept was unique in that the emitter's side lobes were observed and its intercept elevation was unusually high for navigational radar.
4. An intercept of [ ] on 6 December was observed utilizing a PRI which does not equate to the crystal normally associated with this family of emitters. This unusual anomaly was apparently due to some malfunction.
5. Developmental signal [ ] was intercepted on 03 December by [ ] The signal exhibited a two position stagger and sector scan. The signal is probably associated with Ground Controlled Intercept.
6. [ ] reflected two intercepts exhibiting characteristics similar to the signal [ ] Source of emission was roughly placed to the North Korean/PRC coast in the North Yellow Sea. Signal characteristics probably reflect a non-threat shipborne emitter.
7. Two unidents were intercepted and geolocated by [ ] Unident [ ] was located just west of Oslo, Norway and [ ] was geolocated to [ ] Signal was not able to be correlated to any known emitter. Emitter was believed to be one of the many [ ] located in this general area, and both were eventually cancelled as non-threat on the basis of position.

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PROCESSING HIGHLIGHTS

A. Mission 7107 Intercepts 4 GHz RF Component of [ ]

1. On 25 August 1974, the Mission 7107 ground station at [ ] reported intercept of a [ ] like signal active 1800 Mhz above normal limits. The source of the emission was BATUMI, USSR on the Black Sea on the USSR/Turkish border area [ ] of a known Modified [ ] installation. The normal RF band for intercept of [ ] was not active during this collection, therefore, direct correlation with [ ] could not be made.

2. A subsequent intercept was made on 27 September 1974 by the 7107 ground station at [ ] During this intercept the normal RF for [ ] was tasked in addition to the 4050-4850 Mhz receiver band. Preliminary analysis indicates that the 4 GHz signal and the normal 2 GHz [ ] are in both PRF and SCAN synchronism. Detailed analysis continues at project departure and should be completed early next week.

The corresponding tape from [ ] was also checked and the signal was discovered active in the 4050-4850 MHz band and noted to be in scan sync with a [ ] in the Normal rf range. Analysis is continuing to determine if the signals are in fact in PRF sync. The signal was also geopositioned to the area of a known modified [ ] site.



1. 13-166 Possible [ ] Associated

Analysis report has been reviewed and forwarded to all field sites. The information will not be published as an ELT but as a Signal Analysis Report which receives internal distribution at NSA as well as [ ] This was decided due to the lack of location and the fact it was a one time intercept. As for the report itself, no firm association was made with the [ ] Signal and it remains unidentified.

2. [ ]

Cancelled as non threat based on location provided by the field site. Analysis will continue on a time available basis to determine ident and the function of the signal.

3. [ ]

Analysis report completed and awaiting review. Pending review the report will be forwarded to the appropriate field sites.

4. [ ]

Parametric analysis is not available yet. However, to date all reported locations have impacted the same area in the PRC. Presently analysts are searching recent photo of the area.

Page 2 of Enclosure (6) to BYE-59,401-74

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