(TICKLER)

2.

**NRL SPECIAL PROJECTS CONTROL NUMBER**

NRL B-79-75

~~TOP~~ SECRET - HANDLE VIA BYEMAN CHANNELS ONLY

DATE: 18 Feb 75

dgr 7/6/04

| ORIGINATOR | SERIAL NO. | ENCLOSURES |
|---|---|---|
| PME-106 | BYE 59,413-75 | (1) thru (7) |

| DATE REC'D | TICKLER DATE | COPY NO. | RECEIPT NO. |
|---|---|---|---|
| 14 March 75 | | ~~1~~ & 4 | 80,543 |

SUBJECT: POPPY TECHNICAL OPERATIONS GROUP (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 | | (4) | | [signature] | 3/24/75 | |
| 7032 | | | | [signature] | 3/25/75 | |
| 7032 | | | | [signature] | 4/14/75 | |
| 7033 | | | | | | |
| Lawton | | | | | | |
| | | | | [signature] | | |

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 |
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| | 7.2 |

REMARKS

NRL INCOMING DOCUMENT

B079-75

4

BYE-59413-75

transferred 8-22-05 NRO

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

RETURN THIS ROUTE SLIP TO NRL SPECIAL PROJECTS OFFICE, ROOM 222, BLDG. 43.
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**NRL CONTROL RECORD** NDW-NRL-5216/1005 (REV. 3-72)

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CONTROL NO. Byr 54913/75 cy 4

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| | SIGNATURE | DATE | TIME | DATE | TIME | NAME & OFFICE SYMBOL | DATE |
| NRL/7030 | | 7/5/75 | | | | | |
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(OVER)

Handle Via Indicated Controls

# BYEMAN- TALENT -KEYHOLE

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

EARPOP

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NRL B-79-75 ~~TOP SECRET~~

GROUP 1
Excluded from automatic downgrading and declassification

~~TOP SECRET EARPOP~~ ZARF



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

PME-106-542/pt
FEB 18 1975

OFFICE OF THE DIRECTOR

MEMORANDUM FOR THE DIRECTOR, CENTRAL INTELLIGENCE AGENCY (OSI)
DIRECTOR, NAVAL RESEARCH LABORATORY (1000 and 7030)
CHIEF OF NAVAL OPERATIONS (OP 955)
COMMANDER, NAVAL SECURITY GROUP COMMAND
DIRECTOR, NATIONAL SECURITY AGENCY (A81, R24, W2, W34)
DIRECTOR, NRO STAFF (SS4, SS4A, and SS7)



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

Ref: (a) [redacted] 231400Z Jan 75 Cite 0870 (NOTAL)
(b) [redacted] 231630Z Jan 75 Cite 0871 (NOTAL)
(c) CONQUER 272217Z Jan 75 Cite 0472 (NOTAL)
(d) CONCH 161710Z Jan 75 Cite 0785 (NOTAL)

Encl: (1) Agenda
(2) List of Attendees
(3) Minimum Daily Voltage Plot
(4) Collection Highlights
(5) Sun Exposure Plot
(6) Task Group Power Requirements
(7) Satellite Power Considerations

1. A POPPY TOG Meeting was held at the National Security Agency (NSA) at 0930 on 30 January 1975. The Agenda and a List of Attendees are forwarded as enclosures (1) and (2).

2. The following specific topics were discussed:

a. Satellite Status. (NRL)

The orbit of the 7107 satellites places them in a low sunlight period at this time. Today's reading is sixty seven percent. System health remains consistent with predicted decay, except that 7107A has recently required RESET during collection because of low power. This condition is discussed further in paragraph 2.f. The Minimum Daily Voltage Plot is forwarded as enclosure (3).

The current satellite [redacted] spacing is:

[redacted]



b. Site Status. (NSG)

The NSG representatives related the status of each site under their cognizance. The impact of transition to [redacted] has been felt at every site, with [redacted] being the least affected. Some projections for the immediate future were discussed, and the NSG representatives agree to provide additional detail on request. Current planning includes closure of [redacted] at the end of March, 1975.



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B-79-75

c. Collection Highlights. (NSG)

The NSG representatives presented enclosure (4).

d. Processing Highlights. (NSA)

The NSA representatives had no extended briefing at this meeting, but Mr. Gallagher reported that, since the previous meeting (see minutes from 19 Dec 1974), additional intercepts of the 4GHZ RF component of [redacted] had been found. Foreign Technology Division (FTD) is analyzing and will soon publish a report.

e. Engineering Evaluation. (NRL)

The NRL representatives quoted reference (a), their message report on the results of the early January effort at [redacted] to inform attendees of findings. Paragraph six of reference (a) was discussed because it was not clear that the [redacted] Engineering Facility has more extensive capability to monitor satellite telementry than has [redacted] also exercises commands that are not known by the NSG sites, for engineering purposes. What is not explained in this message is that [redacted] is used to monitor other systems that employ similar command frequencies and command sequences. Occasionally, commands intended for one satellite are unintentionally received in another satellite, causing interference problems. The NRL representatives assured the attendees that, while an occasional inadvertent interference may occur, the procedures in use at [redacted] generally preclude this. [redacted] should continue to closely monitor the satellites to provide early detection and feedback when interference occurs.

f. Power Conservation Plan. (NRL)

Reference (b) provides short term and long term (Phases I and II, respectively) recommendations on actions that might be taken to prolong the useful life of the 7107 satellites. Reference (c) describes a very recent experience with 7107A that illustrates the necessity for more attention to this topic.

The NRL representatives described the problem in terms of high power drains that occur primarily when several sites collect data from the satellites on a single orbit. NRL presented more information on options in addition to those listed in reference (b):

(1) The RESET (low voltage) limit could be reduced slightly to prolong collection as voltages drop during collections, and

(2) Elimination of "non-productive" passes, which could be identified by combinations of geographic coverage, time of day and past experience with similar collections.

PME-106-542-75

Enclosure (5) was introduced to illustrate the sun exposure problem. When in full sunlight the satellites can sustain tasking at present (500 ma) levels, but prolonged operation at less than full sun results in excessive drain on the batteries, which never regain their full charge. The 15 March date cited in reference (b) is based upon the beginning of extended low sunlight after day sixty eight (9 March).

The NRO/SOC representatives presented enclosure (6), which shows that some high drain task groups are used much more frequently than others. It was suggested that judiciously reducing the RF coverage (by bands) in selected task groups would serve the purpose of bringing down the "true average" more effectively than a general (ten to fifteen percent) reduction as suggested by reference (b).

The NSG representatives presented enclosure (7) in support of the concensus to reduce power drain as soon as practicable.

It was agreed that the cognizant attendees from the SOC, SSSC, NSG and the NRL should meet on Friday, 31 January, at 1300 at the NRL to pursue the options and to arrive at workable solutions.

3. Two miscellaneous topics were also discussed.

a. On Orbit Calibration. (NSA)

Data presented at the previous TOG meeting (see minutes from 19 Dec 1974) were verified as being accurate. No additional calibrations on POPPY are currently planned. Efforts are being directed toward preparation of a [redacted]

b. Anomalous Payload Performance. (SPO)

At NRO Staff request, program participants are compiling a history of anomalous events over approximately the past two years. It was requested that any attendees having access to information not routinely available in the [redacted] reporting system contact the SPO representative.

c. Task Group C44. (NSA)

This task group was used as an experiment, that has now been concluded. The tasking authorities no longer find use for this group and will cancel.

d. SOI List. (NSA)

A new POPPY site specific SOI list is in draft form at SORS and is expected to be approved for use in the next few days.

3. The next POPPY TOG meeting is scheduled for the Naval Security Station (NSG Headquarters) on 27 February 1975.

R. K. GEIGER

~~TOP SECRET EARPOP~~ ZARF


PME-106-542/pt



# AGENDA

SATELLITE STATUS

SITE STATUS

COLLECTION HIGHLIGHTS

PROCESSING HIGHLIGHTS

ENGINEERING EVALUATION

POWER CONSERVATION PLAN

ENCLOSURE (1) to BYE 59,413-75



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PME-106-542/pt


## LIST OF ATTENDEES

SPO:

NSA:

Mr. Gallagher

NSG: CDR Cole

NRO/SOC:

NRL: Mr. Lawton

ENCLOSURE (2) to BYE

~~TOP SECRET~~ EARPOP 2 APR



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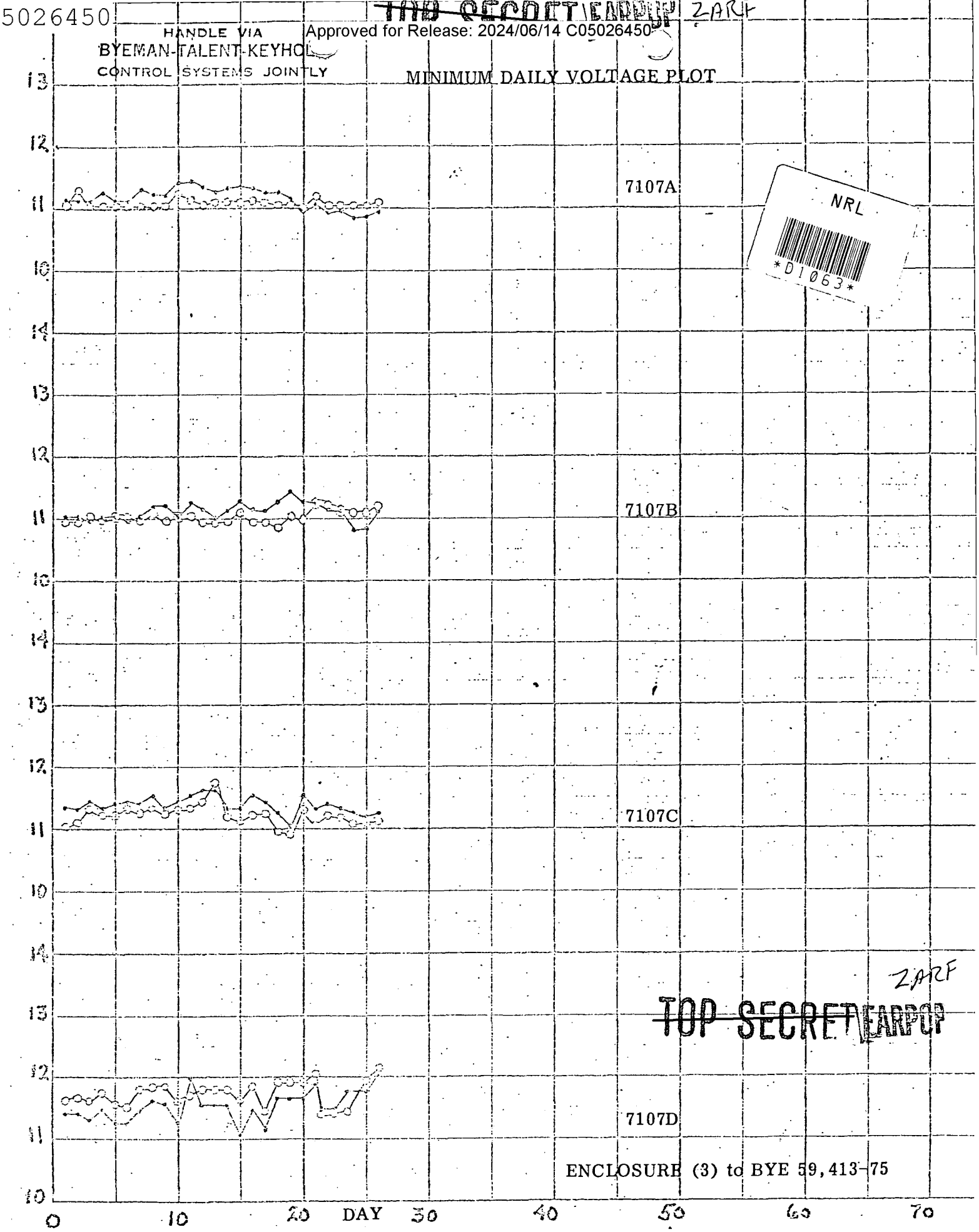
CONTROL SYSTEMS JOINTLY

MINIMUM DAILY VOLTAGE PLOT






2 APR

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ENCLOSURE (3) to BYE 59,413-75

PME-106-542/pt



## COLLECTION HIGHLIGHTS

OCEAN SURVEILLANCE: (17 Dec 74 - 27 Jan 75)

Since the last TOG meeting, there have been a total of six thousand four hundred sixty three [redacted] locations. Seven hundred nine of these were equated to major combatants and/or auxillaries. Seven hundred twelve intercepts were combatant associated, but could not be correlated to a specific hull. One hundred twenty six [redacted] emitters were intercepted, including three 00A: two in the Bay of Biscay, and one in the Mediterranean. Four thousand nine hundred sixteen intercepts of Merchant associated radars were reported.

1. [redacted] 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 exited the Med and returned to the Barents Sea.

3. Kynda CLGM Groznyy and Kashin DLG Krasny Kavkaz returned to the Black Sea from the Med.

4. Kara CLGM Ochakov, Kashin DLGM Sderzhannyy, Kildin DDGS Bedovyy, Kashin DLG Smetlivyj and Kotlin DDG Bravyy transited from the Black Sea to the Med. Kotlin DDG Bravyy has since returned to the Black Sea.

5. [redacted] tracking of the Kildin DDGS Bedovyy is being accomplished through intercept of the developmental signal [redacted] recently confirmed to that vessel. The [redacted] has replaced the [redacted] as primary search radar on the Bedovyy.

6. Krivak DDGSP's Svirepyj and Storoschovoy and Kashin DLG Obraztsovyy transited from the Baltic Sea to the W. Med.

7. Primorye AGI Zaporozhe returned to the Barents Sea after transiting through the North Atlantic and Norwegian Sea.

8. Two intercepts of a [redacted] were made by [redacted] on 19 and 22 Dec 74 and were geolocated to the Sea of Japan. One intercept of a [redacted] was made by [redacted] on 16 Jan 75 and was geolocated to the Barents Sea.

9. The POPPY SYSTEM was tasked via [redacted] to report any Soviet reaction within a 500 NM radius of the following U.S. carrier transits:

ENCLOSURE (4) to BYE

PME-106-542/pt

a. USS Enterprise Subic to Indian Ocean transit, 7-14 Jan, three intercepts were flagged during that time frame.

b. USS F. D. Roosevelt CONUS to Med transit, 3-13 Jan, six intercepts were flagged during that time frame.

c. USS Independence Med to CONUS transit, 13-21 Jan, two intercepts were flagged during that time frame.

Successful coverage was somewhat limited in open ocean due to low number of vessels in area of transits and instabilities in system that hamper intercept against surface search radar. Majority of intercepts reported on FDR transit reflected a SOVFLT combatant transit from the Baltic Sea to the Med. All other intercepts reported in support of coverage were Merchant radars.

TECHNICAL INTELLIGENCE AND EOB:

PROJECT FLAVOR: Thirty-eight intercepts of target emitters were reported in support of the task. Thirty-one [redacted] intercepts were geolocated to [redacted] and five to [redacted]. One [redacted] was also geolocated to [redacted]. One geolocation of a [redacted] was placed to the [redacted] is not presently credited with the SA-4 equipment. Further investigation revealed intercept data was poor and geometry bad. Location was determined by SEL86 and attempts to work signal on 810's failed. Image point was determined to be in the area near the Caspian Sea which is credited with SA-4 sites.

Since 17 December SLM data has been collected on five target emitters. [redacted] collected SIM data on [redacted] on three occasions and once on [redacted] from Moscow ABM site [redacted] accomplished SLM intercept on three [redacted] signals and once each on [redacted]

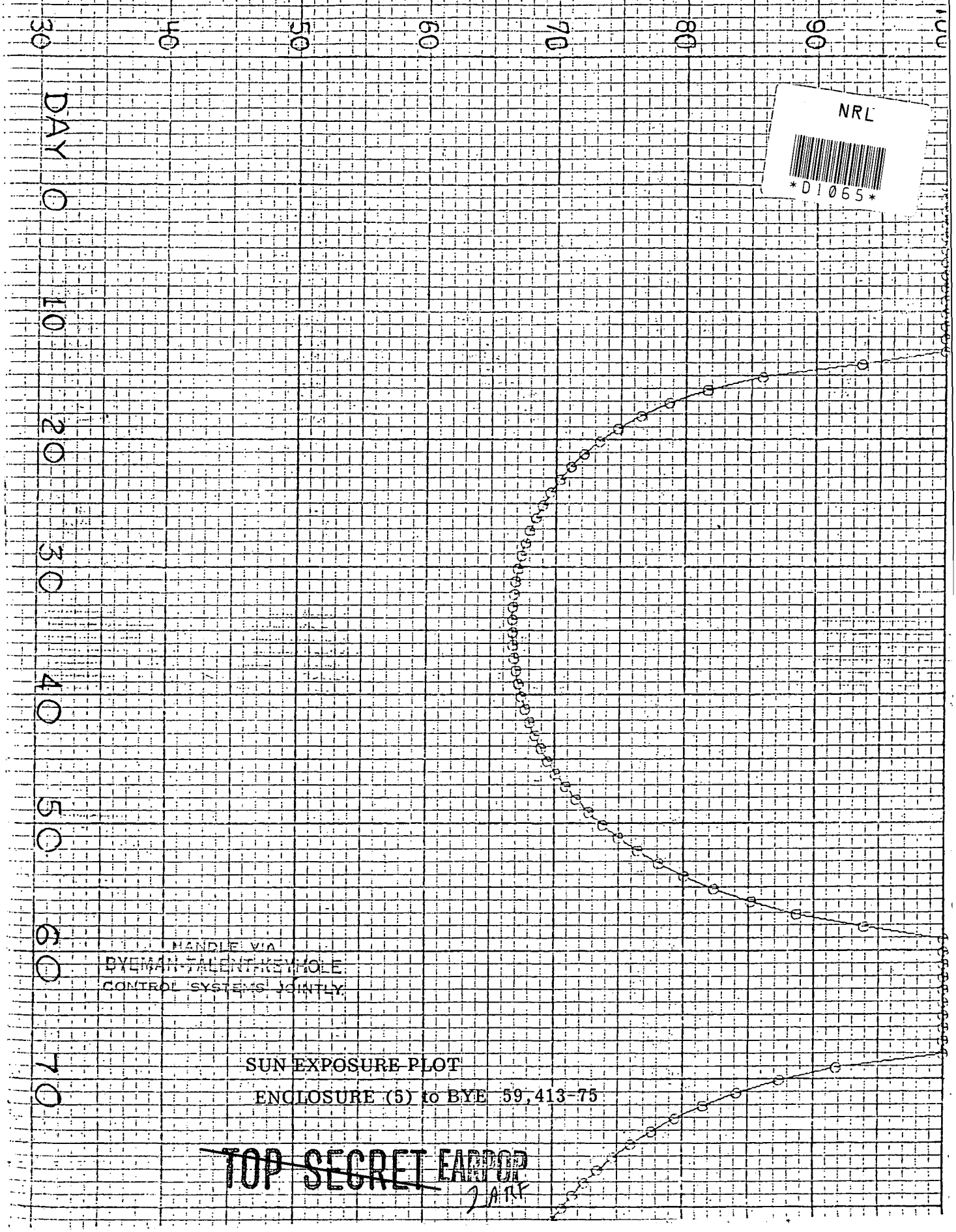
There has been relatively heavy SA8, SA6, and SA-N-4 activity noted from both European and Pacific theaters. SA-N-4 activity can be directly attributed to recent soviet exercises in the Sea of Japan, Baltic, Barents, and from the two Krivaks recently deployed to the Western Med.

[redacted] accomplished their first intercept of developmental signal [redacted] on 16 January. [redacted] reported two intercepts of probable [redacted] radars operating with a stagger mode of operation or the 2889 PPS. [redacted] is not credited with a stagger mode of operation or the 2889 PPS PRF range. One intercept was confirmed switching from a pulsed constant 3371 PRF to the staggered 2889 PRF for one illumination. The other intercept displayed a three element six position stagger but was not noted switching to the 3371 range. All PRI's observed equated to nautical mile crystal values.

PME-106-542/pt

[redacted] was tasked for coverage against project litter target emitters in [redacted] on 16-17 January. No results were obtained due to the poor geometry against [redacted] targets coupled with the beamwidth and scanning characteristics of target emitters [redacted] team work, an [redacted]. Orginally tasked target emitter [redacted] was replaced by [redacted] in tasking due to fact [redacted] illuminator and therefore not processable by system.

PERCENT SUN ~~TOP SECRET~~ EARTH Part



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SUN EXPOSURE PLOT

ENCLOSURE (5) to BYE 59,413-75

~~TOP SECRET~~ EARTH Part

~~TOP SECRET~~ EARPOP



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# TASK GROUP POWER REQUIREMENTS

(PER MONTH)


| # | TIMES USED | POWER MA |
|---|---|---|
| B67 | 21 | 358 |
| B69 | 19 | 296 |
| C15 | 17 | 288 |
| C19 | 124 | 483 |
| C21 | 123 | 495 |
| C23 | 60 | 440 |
| C25 | 27 | 484 |
| C27 | 24 | 502 |
| C29 | 130 | 491 |
| C31 | 130 | 524 |
| K05 | 42 | 402 |
| P55 | 5 | 408 |
| S25 | 2 | 365 |
| S33 | 10 | 266 |
| S41 | 4 | 414 |
| S47 | 4 | 382 |
| S49 | 1 | 352 |
| S51 | 42 | 315 |
| S53 | 1 | 292 |
| S55 | 6 | 352 |
| S59 | 6 | 427 |
| | 798 | 397 (Simple Avg) |
| | 459 (True Avg) | |

| # | TIMES USED | POWER MA |
|---|---|---|
| B88 | 34 | 454 |
| B90 | 29 | 170 |
| C28 | 74 | 449 |
| C30 | 106 | 504 |
| C32 | 89 | 479 |
| C34 | 71 | 412 |
| C36 | 75 | 318 |
| C38 | 72 | 466 |
| C40 | 94 | 502 |
| C42 | 58 | 506 |
| K04 | 43 | 402 |
| P54 | 2 | 508 |
| P58 | 2 | 484 |
| S66 | 2 | 327 |
| S68 | 38 | 250 |
| | 789 | 415 (Simple Avg) |
| | 433 (True Avg) | |

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Enclosure (6) to BYE 59,413-75

Page 1 of 1 Pages
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SATELLITE POWER CONSIDERATIONS

CNSG CONCURS WITH NRL RECOMMENDATIONS TO EASE THE POWER LOAD ON THE SYSTEM. THE RECOMMENDATION TO REDUCE TASK GROUP DRAIN BY FIFTEEN TO TWENTY PERCENT SHOULD BE ACCOMPLISHED AS SOON AS POSSIBLE. DAILY MONITORING OF POWER STATUS REVEALS THE SATELLITES DID NOT RECOVER FROM THE LAST EXTENDED LOW SUNLIGHT PERIOD AS MUCH AS HOPED. THIS IS ESPECIALLY TRUE OF THE 7107A. THE SATELLITES HAVE JUST ENTERED ANOTHER LOW SUNLIGHT PERIOD AND 7107A IS UNABLE TO MAINTAIN THE TASKING LOAD FOR MORE THEN TWO STATIONS PER REV. ONCE COMMENDED, THE SATELLITE LOSES VOLTAGE RAPIDLY. AS MUCH AS ONE VOLT LOSS IN THREE TO FIVE MINUTE PERIODS HAS BEEN OBSERVED. OTHER 7107 SATELLITES ARE BARELY MAINTAINING THREE STATIONS PER PASS AND THIS CAN PROBABLY BE DIRECTLY ATTRIBUTED TO THE FACT THAT THE SATELLITES ARE OVER EUROPE IN DAYLIGHT. CNSG WOULD FURTHER RECOMMEND REDUCTION ON 7107CD TASKING AT [redacted] TO CONFORM WITH THE PRESENT REDUCTION OF 7107AB TASKING AT THAT FACILITY. DISCUSSIONS WITH SITE PERSONNEL INDICATE COLLECTION OF REVS WITH EQUATOR CROSSINGS BETWEEN 102-175 DEGREES EAST PRODUCE LITTLE DATA OTHER THEN COVERAGE OF MERCHANT VESSELS IN ATLANTIC. A REVIEW OF [redacted] STATUS OVER THE LAST COUPLE OF MONTHS REVEALS SITE COLLECTION IS SERIOUSLY INHIBITED BY PRESENT SYSTEM RESTRICTIONS AND RECURRING TIMER ANOMALIES. SEVERAL ATTEMPTS HAVE BEEN MADE TO CORRECT DELAY TIMER PROBLEMS WITH NO SUCCESS. G-54 NAS COORDINATED CLOSELY WITH SITE PERSONNEL AT [redacted] AND IT HAS BEEN DETERMINED THAT PAYLOADS ARE LEAVING THE [redacted] AREA CORRECTLY ACTIVATED. SEVERAL TIMER AND COMMANDING SEQUENCES HAVE BEEN TRIED IN AN EFFORT



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ENCLOSURE (7) to
BYE 59,413-75

TO ACHIEVE FULL COLLECTION OVER [redacted] ALL HAVE BEEN TO NO AVAIL. THE MAJORITY OF [redacted] COLLECTION OVER [redacted] IS PRESENTLY REDUNDANT WITH THAT OF [redacted] CNSG HIGHLY RECOMMENDS CONSIDERATION BE GIVEN TO THE DISCONTINUATION OF POPPY OPERATIONS AT [redacted] CONSIDERING PRESENT CONDITION OF PAYLOADS AND CONTINUING DETERIORATION IT IS CONSIDERED HIGHLY UNLIKELY THAT COLLECTION CONDITIONS OVER [redacted] WILL EVER IMPROVE.