

DATE \_\_\_\_\_

BYEMAN-TALENT-KEYHOLE-COMINT

~~CONTROL SYSTEMS JOINTLY~~

ORIGINATOR

SERIAL NO.

ENCLOSURES

DATE REC'D IN NRL

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**Abstract**

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BYE-52238-71

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# BYEMAN-TALENT-KEYHOLE-COMINT

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of the United States within the meaning of  
The law prohibits its transmission or the  
s well as its use in any manner prejudicial  
any foreign government to the detriment of  
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Intelligence Controls. No action is to be  
taken on any communications intelligence which may be contained herein, regardless of the advantage to be  
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*NRL BTKL-000148-71  
WA 32033*

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GROUP 1  
Excluded from automatic  
downgrading and declassification

DEPARTMENT OF THE NAVY  
NAVY SPACE PROJECT OFFICE, PM-16  
WASHINGTON, D.C. 20360

IN REPLY REFER TO

PM-16:RKG

6 May 1971

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MEMORANDUM FOR DIRECTOR, NATIONAL RECONNAISSANCE OFFICE

SUBJECT: POPPY Growth; capabilities vs funding

- Encl: (1) POPPY Growth  
(2) Significant Contributions from POPPY System (BYE 18424/71)  
(3) Mission Costs per Collection Operation  
(4) NRO Costs/Emitter Location

1. Considerable concern has been voiced by the NRO regarding the cost growth of POPPY over the past few years. I am equally concerned about cost growth and have taken and will continue to take steps to improve management and insure maximum return for dollars spent. However, I feel that too little attention may have been given to the capability growth of POPPY over these same years. I am sure you agree that this is an important aspect and should not be overlooked in any review of the program.

2. Enclosure (1) is an effort to graphically portray POPPY's growth. Shown are several parameters which depict the increased capability of the system. Several of the graphs show improved on-board capabilities, but an effort has also been made in concert with NSA to quantify the POPPY product. It is recognized that numbers by themselves do not take the measure of the value of a system but they do indicate trends and do reflect the capability of a system to provide data. As to the signals of value that have been found in the data, I asked NSA to provide a summary of the more significant ones which are contained in Enclosure (2).

3. Enclosures (3) and (4) show the increasing cost effectiveness of the system as hardware and software capabilities increase.

4. Summarizing some of the significant capability factors of Enclosure (1), the following table shows the percentage increase of these factors from 1967 to 1971. The cost increase of the system over the same period of time is also shown. However, the FY 71 funding increase for ocean surveillance augmentation was purposely excluded because the effect of the augmentation recently initiated has not yet been reflected in the system parameters.

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Capabilities vs Funding

	<u>1967</u>	<u>1971</u>	<u>% Inc</u>
a. Number of [redacted] Frequency Bands Flown	44	115	161
b. Frequency Bands Simultaneously Used	16	48	200
c. Number of Intercepts Reported by NSA	78,635	2,067,201	2,300
d. Number of NSA Reports on New Technology Information	23	45	96
e. Funding (Excluding Ocean Surveillance Augmentation)	\$5,847K	\$9,678.5K	66

5. While it is apparent that POPPY now costs more than it did in the past, I also believe it apparent that it has made significant strides in providing the NRO with an ever increasing system capability and has delivered to NSA an increasing quantity and quality of data.

*Robert K. Geiger*  
ROBERT K. GEIGER

Captain, USN  
Director, Program C

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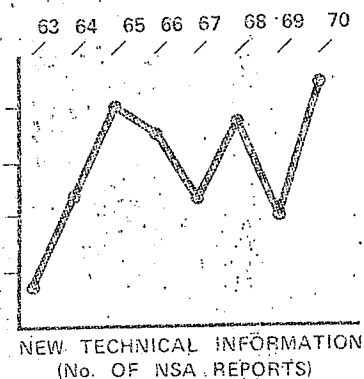
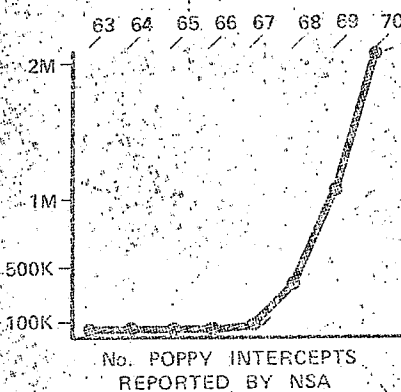
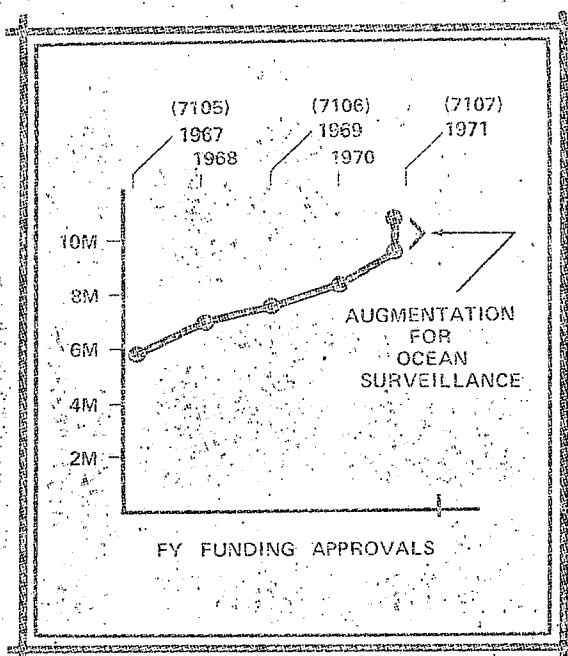
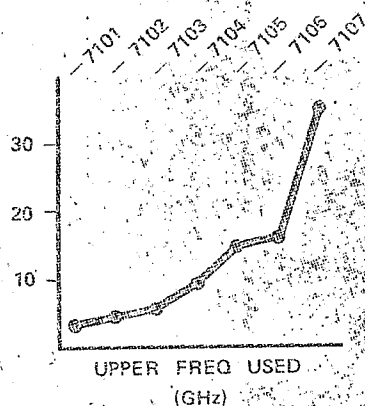
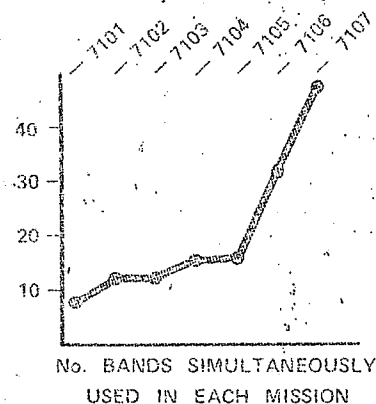
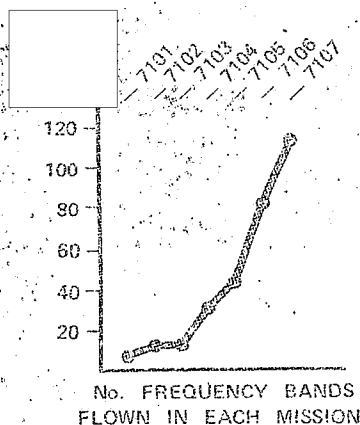
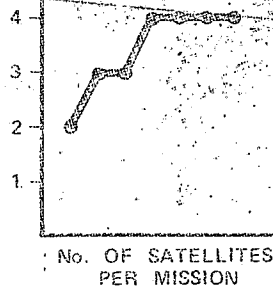
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POPPY GROWTH~~TOP SECRET~~

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Encl (1), BYE 52238/71

1, Cy 5 of 6

FORM 10-67 (11-67)

UNITED STATES GOVERNMENT

# Memorandum

TO : Director, Program C

DATE: 30 April 1971

FROM : Chief, W

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NSA-BYE-18424-71

SUBJECT: Significant Contributions from POPPY System

REFERENCE: Director, Program C verbal request for review of POPPY Contributions

1. An often stated criteria of "significant contributions" from various collection systems is that a "first intercept" was accomplished. While the POPPY system has indeed intercepted many "firsts" a better measure of the value of POPPY's contributions lies in the area of broad RF spectrum general search and electronics systems surveillance. Additionally, the multiple payloads of the POPPY system provide totally unique information concerning the complex scan structure of certain threat weapons systems. The signal power level measurement capability provides unique and valuable data on radar beam structures.

2. There are innumerable examples of the POPPY system performance in the general search mode. Many of these are the "firsts" mentioned above and include the [redacted]

[redacted] and there are many others. During 1970 and 71 several hundred unidentified and unknown signals have been reported by the POPPY field sites. A great deal of analysis effort is expended in further study of these potential threat signals. This is an area where real-time operator/system interaction is so valuable. The case of a very complex signal known as [redacted] is an illustrative example of initial unknown signal detection followed by extensive NSA and field site analysis which has resulted in establishing it as the radar system for the SA-6 SAM system. Similar intercept and analysis has been accomplished against the SA-4 system.

Further examples of POPPY contribution to general search and signal system development are the intercepts of [redacted] a sophisticated Chinese early warning radar and a new mode of operation of the [redacted] Soviet surveillance radar. POPPY data assisted in deriving the dual [redacted] of the Dog House radar. The scan pattern and multi-beam structure of the [redacted] was derived from POPPY data, in conjunction with the precise RF measurement capabilities of the VAMPAM P-989 system.



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Encl (2), BYE 52238/71  
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tion serves to demonstrate the importance of POPPY real time, ground site/payload system interaction and it is in this area that the real value of the POPPY system can best be exploited. The future growth and expansion of these capabilities interacting with other overhead and non-overhead systems is important to the total National SIGINT effort.

*D. A. Boorman*  
for ROBERT J. HERMANN  
Chief, W

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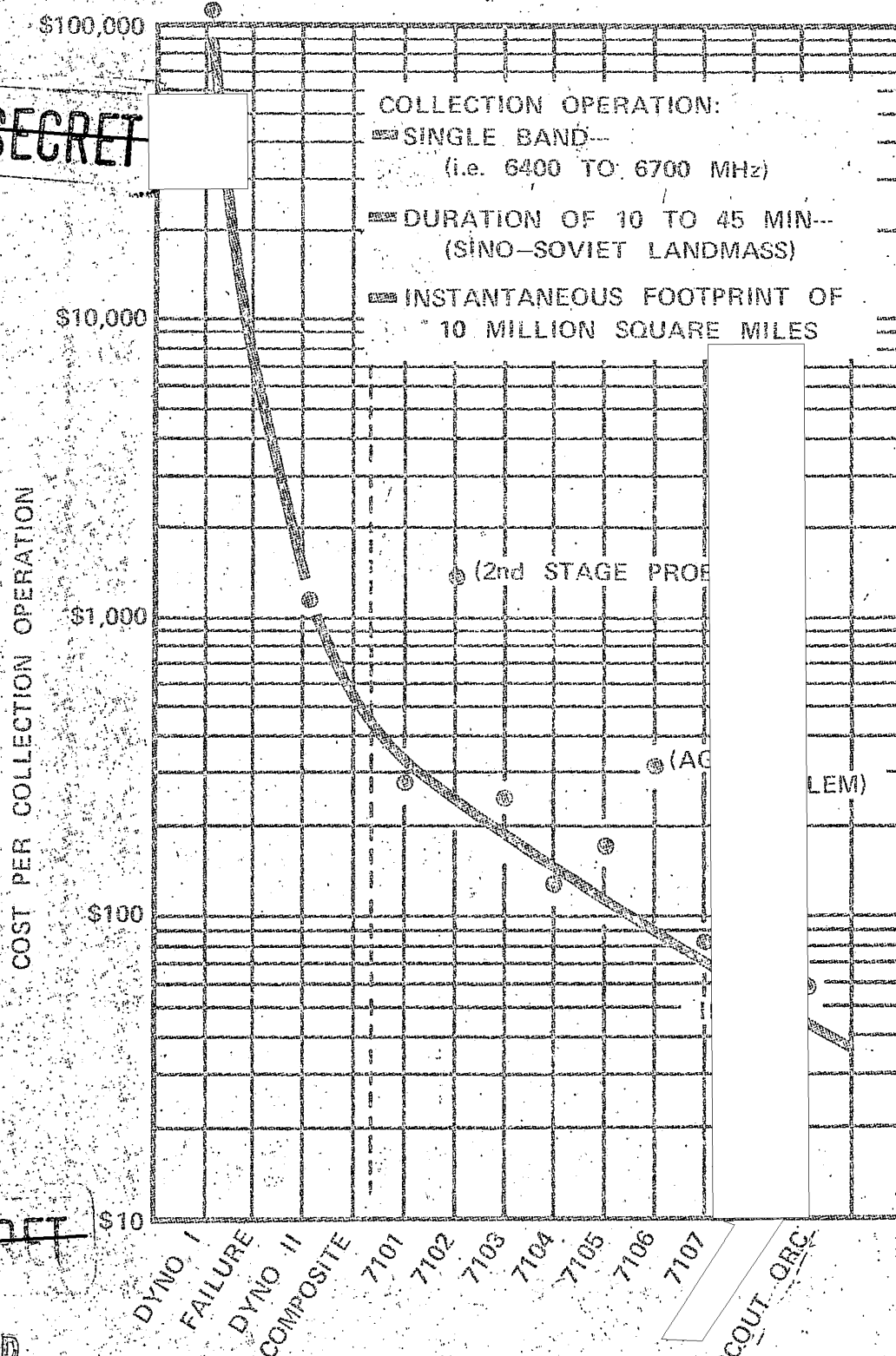
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(PER COLLECTION OPERATION)

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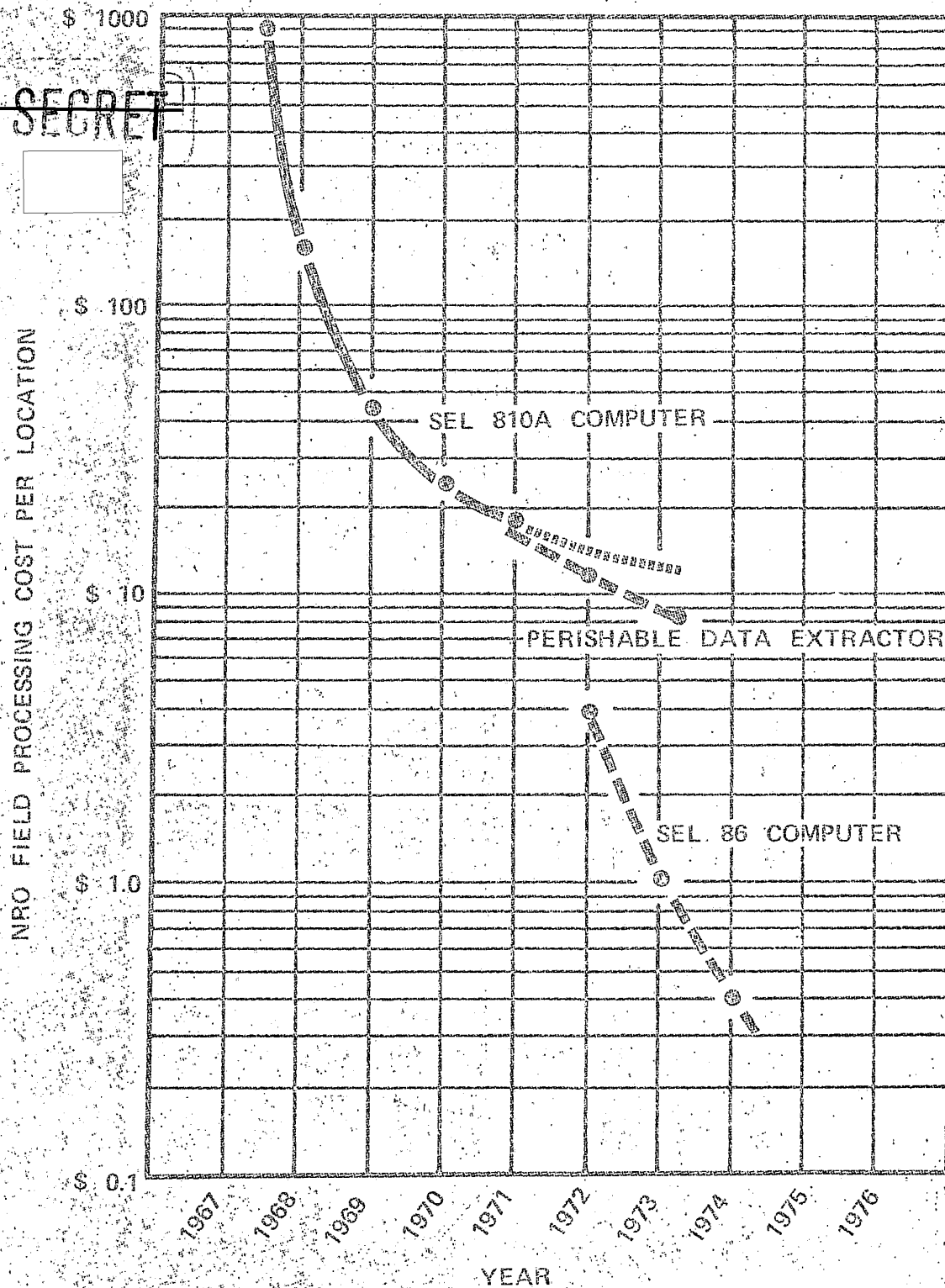
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CONTROL SYSTEMNRO COSTS PER EMITTER LOCATION AT   
(COSTS OF COMPUTER & SOFTWARE AMORTIZED OVER 5 YEARS)

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