OPTIONAL FORM NO. 10
MAY 1962 EDITION
GSA FPMR (41 CFR) 101-11.6

UNITED STATES GOVERNMENT

Memorandum

~~CONFIDENTIAL~~ ~~SECRET~~ [redacted]

~~CONFIDENTIAL~~

TO : Howard Lorenzen

4000-209:AB:lmk
DATE: 21 September 1970

FROM : [redacted]

SUBJECT: Reorganization in Electronic Warfare Division; Recommendations for

Ref: (a) Conf memo 5600-84:HOL:cdd of 15 Sep 1970

1. The subject memorandum outlined a plan for establishing a Space Systems Branch in the Electronic Warfare Division. The mission statement is completely acceptable as stated.

2. I concur with your concerns. There is indeed a heavy dependence on HRB personnel and for the foreseeable future we will probably be extremely dependent on such personnel. I would submit that the proper approach is to attempt to convert all of the HRB Singer employees, who are currently stationed at NRL, to Civil Service employees and, if possible, obtain J. D. Martin, who is HRB's representative at [redacted] Recognizing that clearances are a problem we must begin to establish a pipeline whereby cleared personnel can eventually be developed from within NRL and the Electronic Warfare Division and become the future senior personnel of the Branch. I am particularly concerned about the lack of senior civil servents who can function as a backup to Reid Mayo. Further, I am extremely concerned about the fact that the proposed Advance Concepts Section at present has no NRL employees. We certainly must make every move to establish these sections with strong staffs.

3. In paragraph 5 of the referenced memorandum, speculation is made about the future role in the Navy in space and, in particular, at NRL. Admittedly, the future of the Navy in space is unpredictable as is the long-term future of Program C. My own view is that whatever exigencies the future may hold, the Navy will become progressively more dependent on Program C, and derivative programs in the future. Thus, I think it is our responsibility to make every effort to see that the Navy remains in the space program and that it may realize the full potential that a vigorous program can yield it. As such, I think we must organize a very solid Space Systems Branch which hopefully would be the source of original concepts in the future.

4. I am not terribly concerned about the problems of converting 5614 to Branch status on 1 January. Clearly, this group will continue to require crisis support for a long time and in no way are we likely to be able to circumvent this fact. Nevertheless, above and beyond crisis support, we must develop strong sections to carry out the work that is intended in the Advanced Concepts Section and in the Ground Systems Section.

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4000-209:AB:lmk
21 September 1970

5. I concur that it is important to recruit a strong administrative assistant and we must certainly obtain two seasoned section heads, as soon as we possibly can.

[redacted]
Director of Research

Copy to:
1000

~~SECRET NOFORN LIMDIS~~

NIRSSA 10

18 Sep 1970

~~TOP SECRET~~

Memorandum for the Record

Subj: HERTZFELD Committee recommendations.

At the end of the N-2 conference, 17 Sep 1970, [redacted] closing remarks alluded to the [redacted] Report which has recently been promulgated. [redacted] indicated the following ten significant points which were recommendations of the Committee in regards to OSIS.

1. Integrated Program for OSIS to be reviewed at the highest level in DoD.

2. Do not track all ships everywhere at all times. To track all ships would involve an immense cost. Ships of continuing interest are main targets.

3. Emphasize near-term improvements in communications and ADP interfaces within OSIS and with other systems.

4. Users should be able to request sensor coverage of certain targets at any time without specific approval of national authority.

5. Improve automated message formatting (source-formatting) and routing.

6. Upgrade NOSIC/FOSIC capability. Establishment of a prototype utilizing existing facilities was implied. (It is understood that Committee recommended that the prototype for the FOSIC be established at CINCLANTFLT. This was not brought out at the N-2 Conference).

7. Radar Satellites - Direct coverage when Tactical Commander needs it.

8. High altitude aircraft surveillance can still serve the OSIS Community and should be explored.

9. Study the problem of distributing buoys, both moored and aircraft layed. The systemic laying of buoys could enhance OSIS.

10. Many current surveillance sensors need improvement. They are vulnerable due to the fact that they rely upon cooperative targets.

~~TOP SECRET~~ [redacted]

~~SECRET NOFORN LIMDIS~~

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~~TOP SECRET~~

~~CONFIDENTIAL~~

5600-84:HCL:cdd
15 September 1970

Code 4000

Code 5600

Reorganization in Electronic Warfare Division; recommendation for

Encl: (1) Present Organization Chart and List of Personnel, Space Systems Section and Contractor Support
(2) Proposed Organization Chart and List of Personnel, Space Systems Branch and Contractor Support

1. In anticipation of changing to branch status, as suggested by you, a proposed reorganization recommended for the Space Systems Section (5614) of the Space Technology Branch (5610) is submitted.

2. Branch Name: Space Systems Branch

Branch Head: Reid D. Mayo

Mission: The Space Systems Branch prepares the concepts for, and conducts the research and development leading to the design, fabrication, deployment and operational implementation of advanced space systems. These systems are used in support of both the Navy's mission and the national defense program. The branch also conducts research to further new concepts and new techniques to secure increased capabilities for future systems and to meet new requirements for space systems.

3. While the proposed organization looks reasonable, a careful look at the details clearly shows several deficiencies. The heavy dependence on HRB personnel is clearly evident. Conversion of some of the key HRB personnel will be difficult, if not impossible. This will mean that we must continue to rely on them while recruiting replacements. If this should become evident, obviously they will probably seek reassignment within the parent organization, thus cutting off access to their experience. We could not handle a large conversion all at once because of need to assimilate them into a growing organization. We also face the clearance problems. New hires take about a year to get cleared into the program, whereas HRB has a pool of cleared talent they can call on to take the peak loads.

4. The long and intensive contractor participation in Program C has resulted in a significant investment in certain key HRB individuals by virtue of their wide exposure and acquired technical expertise. It is imperative that we expend every effort in their recruitment. At present we have only one good senior prospect for conversion in Mark Van de Walle. He has been on educational leave from HRB and would be interested in a

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5600-84:HCL:cdd
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Section Head position, if we can get the proper rating for him; however, he will not be available until next April. Lee Hammerstrom has vacilated about conversion in the past. When he was favorably disposed we were up to ceiling. Others will have to be handled on a case by case basis. I sincerely doubt if many HRB personnel at State College can be converted; they have too many roots in that area. We might focus on the HRB personnel at NRL initially for that reason, after discussing the problem with company officials.

5. Another factor to be considered is the future role of the Navy, and NRL in particular, in space. If the present national programs continue, and ocean surveillance is incorporated as an additional national program, then the NRL role might be such as to justify the conversion of all or a high percentage of the contractor personnel (assuming they were agreeable), or employing an equivalent or even greater number. Unfortunately, however, the future of the Navy in space is unpredictable, as is the long-term future of Program C. Under the circumstances, the permanent organization of the Space Systems Branch may have to stay flexible until we have a more solid basis for planning and recruiting.

6. All this leaves me with great concern about conversion to branch status on 1 January as a target date, as indicated. While the group might be labeled a branch in name, their functions would still require all the present crisis support, and the "Now we are big boys" attitude might lead the laboratory into problems with our sponsors. This is why I feel recruiting a strong administrative assistant is crucial, as is the need for two seasoned section heads, before I can see the unit really functioning as a branch. These are real concerns on my part.

H. O. LORENZEN
Superintendent
Electronic Warfare Division

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PROPOSED

15 Sept 90

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Space Systems Branch

325-68	R. D. Mayo	855-15
HRB - S.C.	Eugene DeMark Program Manager	855-14

	Administrative Ass't	341-7,9
	Male Secretary	301-6
495-69	[redacted]	301-6
HRB - S.C.	Birely Simons	301-6

Ground Systems

173-70	F. V. Hellrich	855-13
	Supply Clerk	2005-9
157-69	R. G. Bryant	2005-5
612-69	[redacted]	856-11

HRB at NRL

R. Rishel	2005-5
P. Oesterling (Adak)	856-11

HRB at S.C.

J. D. Martin (Todendorf)	334-11
J. L. Woika	855-13
G. J. Edmonson	855-11
J. L. Riole	855-11
Vacancy (P.I.)	855-11

Flight Systems

325-68	R. D. Mayo, Acting	855-15
788-67	V. S. Rose	856-13
710-67	E. G. Becke	802-12
163-67	[redacted]	856-11
196-66	I. Lindley	856-12
83-68	[redacted]	802-11
60-70	Terry Fisher	855-11
426-70	G. E. Price	855-11
463-70	[redacted]	856-10
	Mech. Engineer	830-11
	Mech. Engineer	830-9
	E. Engineer	855-11

HRB at NRL

James O'Connor	856-13
Engineer	855-11
(Mark Van de Walle	855-14
Educational Leave)	

HRB at S.C.

D. Kresen	856-11
John Berkey	855-13
Bob Houcke	855-11
R. Slogoski	856-11
5 Technicians	856-

Advanced Concepts Research

Electronic Engineer	855-12
Electronic Engineer	855-9

HRB at NRL

L. M. Hammarstrom	855-14
Tom Lawton	855-13
Ed Frankovic	855-12
Data Processor	1520-13

HRB at S.C.

J. M. Shephard	334-9
Bill Bickham	1520-13
Bob Daniels	1520-15
E. J. Washell	856-7
D. L. Wales	855-13
Earl Lyberger	855-11

Interim Systems Analysis Group

L. Hammarstrom	
[redacted]	(Part-time, on loan)
	(Part-time, on loan)
	(Part-time, on loan)
F. Raymond	(Part-time, on loan)

IKE

[redacted]

SECRET

[redacted]

SECRET

PRESENT

1 September 1970

HRB's with CSC grade equivalency

Code 5660
Branch Head

325-68	R. D. Mayo	855-15
HRB-S.C.	Eugene DeMark Program Manager	855-14

Branch Secretary

495-69	[redacted]	301-5
HRB-S.C.	Eberly Simons	301-6

Technical Support Section

173-70	F. V. Hollrich	855-13
157-69	R. G. Bryant	2005-5
612-69	[redacted]	856-11

HRB at NRL

R. Rishel	2005-5
P. Casterling	856-11

HRB at S.C.

C. J. Edmondson	856-11
Earl Lybarger	855-11
J. D. Martin (Todandori)	334-11
J. L. Woika	855-13
J. L. Riale	856-11
D. L. Wales	855-13

Design, Development and Systems Analysis Section

325-68	R. D. Mayo, Acting	855-15
788-67	V. S. Rose	856-13
710-67	E. G. Becke	802-12
163-67	[redacted]	856-11
66-70	Terry Fisher	855-11
198-66	J. R. Lindley	856-12
426-70	G. F. Price	855-11
99-69	[redacted]	856-10
83-68	[redacted]	802-11

HRB at NRL

L. M. Hammarstrom	855-14
Tom Lawton	855-13
E. Frankovic	855-12
J. N. O'Connor	856-13
Mark Van de Walle (Educational Leave)	855-14

HRB at S.C.

Bob Daniels	1520-15
Bill Bickham	1520-13
J. M. Shephard	334-9
E. J. Washell	856-7
D. Kreson	856-11
John Berkey	855-13
Bob Houcke	855-11
R. Slogoski	856-11
Technician	
Technician	
Technician	
Technician	

[redacted]

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 working Papers Questions & [redacted] (Comptroller & NRO)

Statement in response to the informal questions by the Comptroller on 14 September 1970:

Sept 70

~~Top Secret~~ / [redacted]

I EXISTING STATIONS:

1. [redacted]: Is the equipment list still appropriate?

The SEL-Model 810A is going to be sent to [redacted] as soon as the details can be worked out for physical security and environmental control.

The PDE is under development and the estimate of for deployment is still unchanged. The PDE should undergo further development toward one which will just require the computer make scan association sorting before locations are undertaken...thus taking the large step toward the ultimate goal of Near-Real-time geopositioning.

The SEL Model 86 class computer system is under active selection proceedures with close coordination between NRL and the rest of the community.

(BYE-55345-72)

Equipment O&M for FY-71 seems to be at full-year costs, and is the ~~same~~ amount as for limited equipping at [redacted] --reasons?

There was an arithemetic error in this. the $33K equipment annual costs should have been split, $27K for [redacted] with its computer + PDE, and $3K to each of the sites in the Pacific. The domestic Computer system should also have $18K O&M funding for the startup costs in the logistic support of both computer systems during the acceptance testing and program-software development period in FY-71.

The Start-up costs involve expenditures for one-time lower-risk type spare parts that must be in the inventory in small quantity... One depot can support all the operational systems on these subassemblies and power supplies etc. It is for this reason that the FY-71 O&M costs seem higher than the portion of the year would dictate.

2. [redacted] Equipment O&M seems to be at full-year cost? Why? SEL 86 potential in FY-73 and FY-75--are amounts correct? No related software? NO increase in O&M?

Start-up O&M costs require purchase of first-time logistic support and some relatively low-risk spare items which will not be replaced again through the operational lifetime of the PDE.

The SEL-86 cost estimated for FY-73 and FY-75 are in error and should be $429K for each system with a suggestion that they both be purchased in FY-73 instead of [redacted] being delayed until Fy-75. This would imply additional O&M for the [redacted] system a year earlier as well as the procurement and deployement costs also. The software costs for [redacted] and [redacted] are supported by the Contractor Services (Computer) portion of the NRL budget, on Program C.

O&M costs for [redacted] and [redacted] will accrue at the same rate estimated for [redacted] during the year of their respective deployments. Deployment costs will vary. [redacted] to move two computers and return one, [redacted]

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3. Any thoughts of increasing NRL personnel or contractor support for Ocean Surveillance effort?

Yes. Initially the addition of a "Site Coordinator" to assist in the preparation of the computer system for its operational deployement and then to interface with the man-machine ~~xxxxx~~ overseas team as a guarantee that it will be ready for the job it must perform. Training, documentation and logistic support are the essence of his ritual after the systems are placed in operation. A man of this type would be added for each system as it is started through procurement.

There is a staffing plan at NRL which calls for replacement of the local contractors in residence. This plan is over five years old and has not been implemented to date and now that ceiling points are so critical it is doubtful that conversion of these employees to Civil Service would be either desirable or cost effective. ~~They~~ HRB Singer have a 40% Overhead burden for "Away Support" under their Contract through ONR, and NRL's overhead burden is far in excess of this amount.

If the In-Flight facility at [redacted] should have imposed on it a significant amount of operational requirements for, example say..., then additional personnel would have to be brought to bear. The present team is not adequate to man an operational watch bill on this system.

next 2 pages here

4. On page 2 of the POPPY suport to the "Ocean Surveillance Requirement," what is the significance of statement at top: "It is also indicated that modifications to Mission 7107 can greatly enhabce the POPPY collection capability for ocean surveillance. Specific proposals in this regard will be forwarded within 60 days." Added costs envisioned?

Yes,

TI [redacted]

1. What is the status of the construction request?

It is my understanding that this is to be handled through a FY-70 MILCON item which has been held over, for this purpose. NSG must of course give the details.

2. Equipment order date is shown as Jan 72 which would involve FY72 funding. Should this be in the FY-72 budget at $372K? Would any equipment O&M apply to FY-72?

Yes, FY-72 Funding is required. The Analog to Digital Data System (ADDS) is required for this site and it cost $120K in quantities of three systems two years ago when they were deployed. It is suggested that this procurement really be an evolutionary one in connection with the further development of the Second Generation PDE which calls for the PRF sort ability, a powerful step toward [redacted] geoposition analysis.

O&M costs for [redacted] would apply for the analog, and digital systems as well as deployment costs for both, @ $38K, $18K and $10K respectively, with only the latter portion being a one time cost. [redacted]

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continuation:

1. [redacted]:

1

2

3

4. On page 2 of "Program support to the ocena surveillance Requeirment" what is significance of statement at top: "It is also indicated that modifications to POPPPY Mission 7107 can greatly enhance POPPY collection capability for ocean surveillance. Specific Porposals in this regard will be forwarded within 60 days." Added costs envisioned:

Yes. But in the description of those changes to Mission 7107 which will enhance the ocean surveillance capability, it must be understood that there are very few changes which will JUST help ocena surveillance. Rather the improvements for Mission 7107 will support the entire, across-the-board operational capability of the Mission and only incidentally improve the capability for ocean surveillance. As an example, the improvements planned in X-Band by the addition of a series of 20MHz wide adjoining contiguous filters, will act the same way toward aiding in the isolation of a ship signal as it will, toward isolating an airborne emitter. Thus the improvement is not exclusively in the arena of ocean surveillance.

With this understanding it is possible to list some general collection site system improvement areas which can assist in the ocena surveillance capability:

1- Second Generation Computer system of the SEL System 86 class, which by virtue of its increased speed will provide an improvement in the on-site processing capability by a factor of 40 to 50 at Initial Operation Capability (IOC). After the software has been written to take advantage of the tremendous flexibility of the new computer this improvement factor may rise by ~~xxxxxxxxx~~ by a factor of 400 or 500 times that presently available.

The [redacted] capability will be increased by the ~~loan of another~~ SEL-810A similar to the one that they already have, for a period of approximately a year, thus improving their capability by something like a factor of two, during the interim while the second generation computer is being selected, procured, programmed, acceptance tested and ultimately deployed to [redacted]

2- Perishable Data-Extractor PDE will allow the selection of certain data by virtue of its Spacecraft Transmitter channel /or/ band of origin so that the computer will be able to treat this data and exclude all other data in its effort for near-real-time geopositioning. This PDE will provide the re-formatting of the data into the format required for local, on-site processing. This PDE will not provide any attempt to isolate the data into PRF groups so that only a scan sort is needed to isolate the discrete emitter from ~~all the brothers and sisters~~ which are collected simultaneously with it.

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3- The Automatic Antenna Tracking System (AATS) is designed to use a punched-paper tape and reader to up-date the site collection antenna in both azimuth and elevation at 15 second intervals and track without human intervention with such small steps that the changes are not discernible in the data. [redacted] past operator lapses have generated unfortunate voids in the signal [redacted] ey would not watch the signal by the pressuee of other duties, the antenna might stay on one heading too long so that the spacecraft moved out of the collection antenna pattern and the signal would drop out.

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II. Modifications to the spacecraft which might enhance ocean surveillance capability of the Mission 7107:

1- Slight alteration of the S-Band coverage in Band #8 and #9 so that the [redacted] shipborne emitter might be found more squarely inside a single collection band rather than be spread between two adjacent collection bands. Thus Band #8 goes up to 2840 MHZ instead of only 2800 as was proposed in May 1970. Thus the most important part of the ship radar spectrum has been slightly tailored for better collection and identification ability in Mission 7107 than has been done in the past.

2- X-Band has been modified in Mission 7107 by the addition of a Comb-Filter so that there are a series of 20MHz wide adjoining contiguous filters which operationally may be used to by frequency selection, either accept or reject a signal. By this process operationally there will be a capability to collect more specifically those signals emanating from ships and discriminate against all others. This technique will make great impact on the use of this very important radar band, which has been ignored or used very little in both domestic and on-site processing.

3-Mission 7107 is now proposed for modification so that there will be four-way commonality in the collection of all four spacecraft in the following portions of the spectrum:

Band #	Frequency coverage proposed (4-way commonality)
A/B#4	815 to 970 Mhz
C/D#4	815 to 970 MHz
A/B#6 & . . .	2100 to 2580 MHz
C/D#7	2100 to 2580 MHz
A/B#8 & A/B#9=	2680 to 2840 and 2840 to 2930 MHz
C/D#8	2680 to 2930 MHz
A/B#17 . . .	5850 to 6725
C/D#9 . . .	6400-6725

This 4-way coverage provides the capability for geopositioning in these parts of L-Band, S-Band, C-Band and X-Band from any pair of spacecraft of Mission 7107 thus improving the time over target aspects and potential for geopositioning in the parts of the spectrum where the major shipborne emitters are located.

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3. Would there be additional station costs, such as NRL personnel and contractor support, as provided for existing stations?

Yes. A Contractor Tech-Representative would be placed In-Residence for the first year or two until the site could take over the technical load and provide the required degree of liasson with the technical team which provides them with the tools to do their job. As the software becomes more sophisticated there is an increasing demand that the sites adopt a Standard Operating Prodeedure so that each one will proceed toward the processing goals in much the same manner. One way of providing this common denominator is to provide the influence of a resident representative to bridge the gap. Another arena that will require personnel is that of Training for both Operations and Maintenance; at this time selected personnel are being sent for training to the various contractor plants where the computer and its peripherals are manufactured, for special courses of operating and maintenance instruction...this is costly and not on the specific instrument we have in our system so it is not as effective as instruction on our total system. It is anticipated that the NRL Computer system at [redacted] will require either a maintenance contract or an additional maintenance man on the NRL staff to fulfill this vital function of both maintenance and training.

4. Any impact on [redacted] costs?

The major impact on [redacted] which will be resultant of the operations at [redacted] will be in the arena of interrogation or providing the operational commands for the spacecraft operating from the [redacted] collection scene. This local [redacted] site will not be able to provide all the commands required for the total load, but with cooperation from [redacted] the majority of the orbits within range of [redacted] will be taskable early in the acquisition range of [redacted]. This interrogation requirement when levied on [redacted] will impose some adjustment in the operations of the site, and will probably levy a burden of communications between [redacted] and [redacted] as well as between [redacted] and the NSG Headquarters. When this is established it is ~~thought~~ desirable for [redacted] to perform a part of the spacecraft commanding or tasking, for [redacted], to relieve them of this burden and also improve the command and control aspects of this program by reducing the occasions when our commands are exposed at overseas locations.

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Top Secret [redacted]

14 September 1970

Mr [redacted] Dir Prog

FOR OCEAN SURVEILLANCE

Existing Stations

1. [redacted] Is equipment list still appropriate? Equipment O&M for FY 1971 seems to be at full-year cost, and is same amount as for limited equipping at [redacted]--reasons?

2. [redacted]. Equipment O&M seems to be at full-year cost--why? SEL 86 potentials in FY 1973 and FY 1975--are amounts correct? No related software? No increase in O&M?

3. Any thought of increasing NRL personnel or contractor support for ocean surveillance effort?

4. On page 2 of " Support to the Ocean Surveillance Requirement," what is significance of statement at top: "It is also indicated that modifications to 7107 can greatly enhance collection capability for ocean surveillance. Specific proposals in this regard will be forwarded within 60 days." Added costs envisioned?

b. [redacted]

1. What is status of construction request?

2. Equipment order date is shown as Jan 72, which would involve FY 1972 funding. Should this be in the FY 1972 budget at $372,000? Would any equipment O&M apply to FY 1972? 123 447

3. Would there be additional station costs, such as NRL personnel and contractor support, as provided for existing stations?

4. Any impact on [redacted] costs?

c. [redacted]

1. Director C memo says this should be addressed in conjunction with the on-going Congressional deliberations. Status? Equipping and cost potentials through FY 1976?

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SOME OF THE OPPORTUNITIES FOR PRESENTING THE LATEST VERSION OF OUR BUDGET CRISIS TO THE PROGRAM MANAGERS AND THE COMPTROLLERS OFFICES ARE AS FOLLOWS:

1. Mr. [redacted] questions of 14 September have several specific references to the cost impact on NRL in the arenas of Operations and Maintenance (O&M) and in additional personnel....these are reproduced here for clearity:

EXISTING STATIONS:

#3. "Any thought of increasing NRL Personnel or contractor support for Ocean Surveillance effort?

#4. On Page #2 of the Program Support for Ocean Surveillance Requirement, paper of 17 August, What is the significance of the statement at the top: "It is also indicated that modifications to the Mission 7107 can greatly enhance Program "C" collection capability for ocean surveillance. Specific proposals in this regard will be forwarded within 60 days." Added Costs envisioned?

[redacted]

#1
#2. Equipment order date is shown as Jan 72, which would involve FY-72 funding. Should this be in the FY-72 budget at $372,000? Would any equipment O&M apply to FY-72
#3. Would there be additional station costs, such as NRL personnel and contractor support, as provided for the existing stations?
#4. Any impact on [redacted] costs?

NOTE THAT THE 17 AUGUST PAPER ON AUGMENTATION OF PROGRAM "C" FOR OCEAN SURVEILLANCE DID PROMISE FOR A 60 DAY RESPONSE TIME BY NRL ON THE SPECIFICS OF THE MODIFICATIONS TO MISSION 7107.

MR. [redacted] WANTS HIS QUESTIONS ANSWERED BY 16 October also so it would appear that NRL Should surface its present budget situation superimposed in the responses to these two specific requests for costs and personnel information by Director Program "C" and by the Comptroller.

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~~Top Secret~~/ [redacted]

Top Secret [redacted]

Subject ---Mr. [redacted] Questions of 14 September with response due 16 OCT.

1. [redacted] Is equipment list still appropriate? Equipment O&M for FY-71 seems to be at full-year cost, and is same amount as for limited equipping at [redacted] ---reasons?

2. [redacted] "Equipment O&M seems to be at full-year cost-- Why? SEL 86 potentials in FY-73 and in FY-75---are the amounts correct? No related software? No increase in O&M?

3. Any thought of increasing NRL Personnel or Contractor support for ocean-surveillance effort?

4. On page 2 of "Program "C" Support to the Ocean Surveillance Requirement," (dated 17 August from Dir Prog "C" to Capt Geiger), What is the significance of the statement at top? "It is also indicated that modifications to Mission 7107 can greatly enhance Program "C" Collection capability for ocean surveillance. Specific proposals in this regard will be forwarded within 60 days (before 16 October 1970)." Added costs envisioned?????

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ONE VERY NECESSARY ADJUSTMENT WHICH CAN BE MADE IN OUR BUDGET SUBMISSION AT THIS TIME IS TO IDENTIFY THOSE SPECIFIC INCREMENTS OF EFFORT WHICH ARE IN DIRECT RESPONSE TO SOME REQUIREMENT LEVIED BY NSA OR THE NRO OR SOME OTHER ELEMENT OF THE COMMUNITY AND SUBMIT AN ESTIMATE OF COST WHICH EQUATES TO THIS EFFORT...THEN THE SPONSOR MUST DETERMINE IF THE WORK WILL PROCEED OR NOT. This was not necessary in the past when we had sufficient money to undertake those effort which we ruled were reasonable and prudent. However now in a money shortage climate we must get fiscal support from every quarter possible and with this support comes the other ingredient... technical direction so that the sponsor can be sure he is getting his money's worth. This is somewhat degrading to our historic role but this is not the time nor can we afford to serve our pride and ego.....

There are at least two effort in 5614 which can be thus identified and both have been underway for some time so we might get in trouble now for asking for support in the middle of the effort but neverthe less we have to take every reasonable step to gain additional fiscal support. The first such effort is that of the Buffered Tape System (BTS) under Terry Fisher and John Lindley and they have been asked to write up the description of the effort suffieient for us to submitt it as one which must be continued and funded separately in light of the acceleration implied by the Augmentation of the program for Ocean Surveillance. The second effort is that of the Quality Control (QC) Analysis complex recently under considerable discussion by memebers of the NSA team. This effort is one of long historic need and one which NSA has only recently engaged in in any significant way. It is therefore suggested that the effort be sufficiently documented so that NSA can be given the mandate to support it fiscally or forget about it and let us continue the effort thusfar engaged here at NRL.

In a cost and budget climate which has now surfaced here at NRL the first step is to ascertain just how much our resources really ammount to and then to arrange the total effort into a priority listing so that the most important items overall are the ones which will be undertaken and in this regard one can not separate the priorities into various sectors such as 5170 and another like 5614....their priorities must be combined so that the total impact on Program "C" is considered and not special emphasis on one group or the other. It is therefore my intent that a major survey be taken within each group to determine what has transpired How we can be able ti identify those items of highest priority and How we can gain additional lsupport by identifying certain specific efforts and asking for funding to support these which impact on the Ocean Surveillance effort.....

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Top Secret

Top Secret [redacted]

3. The cost, both one time and recurring, of adopting this proposal is summarized below:

Costs (In Thousands of Dollars)

	FY 71	Fy 72	Fy 73	FY-74	FY-75	TOTAL
A. One Time Cost						
Equipment	1147		574*		631*	1147K (2352K)*
B. Annual Cost (Recurring)						
Personnel	84	0	110**	110**	120**	424K
Equipment	33	33	66	66	96	294K
TOTALS	1264K	33K	750K	176K	847K	1865K (3070K)*

* After evaluation of SEL Model 86 at [redacted] it is recommended that consideration be given to deployment of a Model 86 at [redacted] in FY-73 and to deploy another to [redacted] in FY-75.

** A small increase in the personnel manning level of [redacted] may be required on a full time basis in view of the increased capabilities for processing, locating and reporting attendant with the Model 86.
Three additional billets are required at NRL to actin the Site Coordination capacity

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Top Secret [redacted]

SECRET

Washington DC.
4316 Payne Dr. S.E.
12 Sept 1970

Dear Marty and all:

Yesterdan was another day in which this porgram hass enjoyed a point of inflection in its growth curve...the approval was given by Mr Packadd to proceed with the Augmentation for Navy purposes. A Quest that started back in April 1968. This means that as soon as possible wou will have (1) Temporrary augmentation, probably in the form of another #810 in the trailer set-up. This will increase your potential for the next year but ~~xxxx~~ during this next year we will be (1) selecting a more modern Computer, (2) Procureing it, (3) programming it and ultimately(4) deploying it to your present computer floor instead of the turquoise unit. Then possibly for another six months you would have both the trailer set-up and the new computer, ~~xxxx~~ with the major emphasis being to shake the new one out operationally. At this time the decision would be made whether you would keep both or whether the trailer set-up would be returned to NRL. I know that most of these thoughts are tumbling out one on top of the other and some of them may not come to pass but the major reason for my writing this is for you to get your inputs into us now before we have our ducks all lined up. The thuught here is that the System #86 or equivalent machine would give you an initial advantage of 10 to one in reduced processing time but some guesses are more like 50 to one. Ultimately after further streamlining and exploitation of the new machines flexibility the estimate is more like 400 to one. The $$$$ are fixed at something like $973K for 2-instruments and the first year of software development, so do not get your mouth set for any IBM 360-??? or anything so grand. Another part of the action is for us to develope the PDE (perishable-data extractor) that George Price has probably told you about. 3 of these are to be deployed to the digital sites. George and Terry are the co-Scientific Officers on this task and this is one of the reasons why they are doing their studying of your tasks and the data situation at your place now.

As you probably know, Mr. Lorenzen plans to visit you on the last day of Sept and first of Oct, and State College was supposed to ask you to make reservations for him and his wife in [redacted] at the [redacted] Mr. Dix and I would like to come over there in late October or early November but no orders have been placed yet. We are going to State College for 2½days next week, 16,17 &18 I think. [redacted] relief) is going with us so I hope that the HRB credit rating will improve with [redacted] munity. So far the innovations you have seen in this

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arena have been due to his trying to make things better. I wish we could get him over to see you folks so that your ideas could be passed first hand. I don't mean to imply that your voice is not normally heard through the fine work of Mr. Olson's team because I'm sure that it is. Your work on the #555 before 31 August was extended here on Saturday AM with Dick Wales and Shep processing at State College. I took a tape that Jim had made when he was checking out the antenna tracking System (ATS), up to them on Tuesday and they"worked on it" for an extension of your track. This is not a job that we want to advertise as a part of our job but it seemed like a good idea and now is a first for us xx who have sat on the side lines so long and watched your fine work.

The major reason that the program is now being given another leap forward is that you folks have done so much, so very well. It is a delicate balance which you must observe because a single mistake can wipe out a years worth of good reputation. I would especially caution you about the "Pin Number# correlation. I have heard that on several occasions where the choice is not obvious that you have assigned the wrong one. Consider the risk against the slight loss if no assignmettt were given. I know so little about it and I hope that you are not offended at my bringing it up at all. I have sensed that our program office is regularily mis-quoting our present and demonstrated capability and If you get a chance to summarize the present problems and capabilities in the "yankee" problem and that general spectrum etc....

[redacted] continues to give strong lip service to the P-1 competitor. I hope that you can find out just why this looms as such a great salvation in the Navy arean. Those who have pioneered this recording thing have more or less abandoned it I have the feeling that they may have some good ideas but they have not cut me in yet. So far they have convinced many others that our scheme is not the way to go...all I can add is that your effort is"the Only Game in Town" today and that it takes only a small improvement or two to make it one of the strongest contender for the "Ultimate" system. I think that your Admiral and Russ's are not of this same school of thought right now though...

I am extremely confident that there are some very lucrative areas ahead of both of us in the next year. The manner in which the "Torch was passed so effectively" as Lt. Potts and his mainstays were relieved as well as when you relieved Earl, just further emphasizes the wisdom and inspiration of the present team assembled there around [redacted] and you. We are continually amazed and in awe of the excellence of the output... [redacted] can say is that it is largely responsible for our present potential...Keep it UP. Our confidence has not been misplaced.

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TOP SECRET

OPTIONAL FORM NO. 10
MAY 1962 EDITION
GSA FPMR (41 CFR) 101-11.6

UNITED STATES GOVERNMENT

Memorandum

TO : Howard Lorenzen

4000-192:AB:sor
DATE: 8 September 1970

Secret

FROM :

SUBJECT: EW systems

1. It has been almost three years since this Laboratory undertook the rather comprehensive MSD Study. I think it would be very much in order to hold an extended review of possible directions that the Laboratory should consider in future tactical EW systems. While the SHORTSTOP system will presumably go into evaluation and possibly limited procurement, there are as your Division has recognized some undesirable features of that system. These purported deficiencies have led people to speculate that it will not be a cost effective candidate system for placement on new construction ships. For example, no EW configuration has been called out for the 963 class destroyer. In the future we presumably would want to look to cheaper systems that are more easily maintained and built to have a longer mean time between failure. In addition there will be a need for systems that have smaller weight, moment, and power requirements.

2. I recognize that these problems represent the ongoing areas of concern of several of your Branches, and that no easy or obvious solution is particularly apparent. Nonetheless, I think that it might be useful to review the situation and decide where we can and should put our support and energy in the future.

3. I would like to set up a meeting to review the Laboratory's approach to small ships SHORTSTOPs and SHORTSTOP variants sometime in mid November. Please contact to set up a mutually convenient

Director of Research

Copy to:
1000
5000

for more up to 03 for a couple of months.

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TO	FROM	REMARKS

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ITEM NO. (bundle)	COPY NUMBERS OR RECORDING SERIAL NUMBERS	TITLE OR CATEGORY	TYPE
1	WORKING COPY NSA-BYE-19291	PROPOSAL FOR POPPY SUPPORT FOR OCEAN SURVEILLANCE	

PASSED COPY TO NSGC. 9-10-70 TD

SIGNATURE

FORM A1295 NOV 66 (Supersedes A1295, A1295A and SG-10 MAR 60)

(CLASSIFICATION, IF ANY)

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(13)

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R-597-94

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NSA-BYE-19291-70
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9/4/70

~~TOP SECRET EARLOP~~

MEMORANDUM FOR THE COMMANDER NAVAL INTELLIGENCE COMMAND

SUBJECT: Proposal for POPPY Support for Ocean Surveillance

REFERENCE: (a) Director, Program "C" proposal, subject as above
~~TOP SECRET~~ [redacted]
(b) SEC NAV proposal

1. The proposed alternative to the SEC NAV proposal has been reviewed. I concur in the necessity of using Program "C" resources as an interim solution to the ELINT portion of the Ocean Surveillance problem.

2. I have previously stated that pending the acquisition of an optimized Ocean Surveillance system we support the installation of an expanded processing capability at [redacted] and minor increases in manning and equipment at all sites. The development of a Perishable Data Extractor (PDE) is considered to be highly desirable and should be installed at the existing Navy sites.

[redacted]

4. It is therefore inappropriate for an interim solution, to update the computer system at [redacted] by installing the SEL System 86 at a total cost of $973K. I believe that an additional SEL 810A computer will provide adequate interim geopositioning capability for shipborne targets exclusive of X-band. Rearrangement of local station processing functions will be made so as to allow for expeditious handling of perishable data and at the same time fulfill other requirements for processing high priority data at all of the field sites.

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~~TOP SECRET~~ [redacted] ~~EARLOP~~

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5. The [redacted] site addressed in TAB B of the proposal will not provide a surveillance capability for the SSBN holding areas for the reasons given above. Therefore, I cannot concur with the installation of present generation equipment which will undoubtedly be incompatible with an optimized system available in the near future. The coverage of the North Atlantic provided by an updated station at [redacted], although not complete, [redacted] be adequate in the interim. As a matter of priority we and the NRO [redacted] work together to expedite the interim solution and provide the necessary direction to the design of an optimized ELINT Ocean Surveillance system. Further, we must define more specifically the SIGINT portion of an over-all Ocean Surveillance system.

TOP SECRET

NOEL GAYLER
Vice Admiral, U. S. Navy
Director

cc: DIR
NRO
ADP
POL4/SPO
K4
K46

2nd year

[redacted]

86 86

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NRL SPECIAL PROJECTS CONTROL NO. NRL B-000105-70

DATE 3 Sep 1970

ORIGINATOR	SERIAL NO.	ENCLOSURES
MANAGER, PROGRAM C	BYE-66401-70	

DATE REC'D IN NRL	COPIES REC'D	COPY NOS.	RECEIPT NUMBER
14 Sep 1970	One	#3	TS-835/70

SUBJECT
POPPY Technical Operations Group (TOG) Meeting: report of

D143

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~~EARPOP~~

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NRL B-00085 70
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~~TOP SECRET EARPOP~~

DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
WASHINGTON, D.C. 20350

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NIC-2Q/rbb
BYE 66401-70

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3 SEP 1970

From: Manager, Program "C"
To : Distribution List

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

Encl: (1) TOG Agenda

1. A TOG meeting was held at 0930, 6 August 1970 in the Hoffman Building. Following is a list of attendees:

[redacted]	Program Manager's Office
MR. DIX	Program Manager's Office
MR. MAYO	Program Manager's Office/NRL
LCDR McGRAW	NRL
LTJG MORGAN	NSG
[redacted]	NSG
	NRO
MR. ABPLANALP	ASA
[redacted]	NSA
MR. GALLAGHER	NSA
	NSA
	NSA

2. Enclosure (1) is a copy of the agenda. Following is a summary of the discussion:

a. (#1) Status report:

7105A/B [redacted] opening at .5nm/day. 05A has a weak transmitter resulting in the [redacted] An increase in receiver sensitivity is expected to partially correct this loss.

7105C/D [redacted] closing at 30nm/day.

7106A/C [redacted] closing at .1nm/day.

7106B/D Inoperative, cause under investigation.

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BYE 66401-70

b. (#2) NSA gave a summary on the recent trip to the POPPY ground sites. (Trip report BYE 19097-70.) One of the largest problems at all sites is the difficulty with manual antenna tracking. NRL is working on an automatic tracker to overcome this problem. October 24th is the expected completion date of the [redacted] building, an NRL team will be on hand at that time to complete the installation. The team for [redacted] will be ready for deployment in January. NSG added the comment that feedback to the sites from NSA was outstanding.

c. (#3) The closure of [redacted] has been directed, POPPY operations will cease on 15 August. Instructions to the station on equipment disposition and a commendatory message are needed. The Program Manager's Office will originate the required messages after appropriate coordination.

d. (#4) The output of the ADDS receiver was discussed as related to the superiority of the digital output compared to the analog output. NRL will make a test tape at [redacted] as a starter in considering this situation.

e. (#5) Signal T-8834 appears to be an older signal than first believed. The source of T-8834 may be SA-6 related and exists in great numbers or is possibly portable as it is being discovered in many locations.

f. (#6) POPPY tasking by NRO has been revised. There are new frequency priorities and new uses for SLX and [redacted] operation. The ground sites can automatically go into SLX mode whenever an SOI is noted.

[redacted]

Distribution List:

COMNAVSECGRU
Director NRL (Code 5614)
NRO (Attn: [redacted]
NSA (Attn: K4/SPO
ASA

TOG AGENDA

0930, 6 August 1970

Hoffman Building

1. Operational status report. (NRL,NSG)
2. Debrief on field trip. (NSA)
3. Closure of [redacted] (P/M,NSA,NRL,NSG)
4. Dynamic analog output from ADS receiver. (NSA)
5. Review of analytical progress on T-8834. (NSA)
6. Additional items.

Enclosure (1)