SECURITY CLASSIFICATION (If any)

~~CONFIDENTIAL~~

DISPOSITION FORM

FILE NO.	SUBJECT
	"Robertson Report"

TO C/S | FROM P/P | DATE 9 Aug 1954 | COMMENT NO. 1

Major Carson, P/P, 60605

Reference: C/S, Memorandum, subject as above, dated 30 Jul 1954 w/inclosure Summary with Appendix "A", Study of the Special Study Group of the NSASAE Submitted 16 Oct 1953

In accordance with paragraph 3b(1) of reference, the attached report resulting from conference held pursuant to paragraph 3b of reference, is forwarded herewith. Primary, Secondary or Joint responsibility for implementing action is indicated in appropriate column of inclosure.

John J. Davis

JOHN J. DAVIS
Colonel, Arty

Incl:
a/s

cc:
DD/PROD - 5
DD/RD - 5
DC/S - 2
P/P - 3
PERS - 2
COM - 2
TSD - 2
SEC - 2
S/Asst (Capt Holtwick) - 2
Chairman TSB (Col Jones) - 2

~~CONFIDENTIAL~~

DD FORM 1 FEB 50 96 REPLACES NME FORM 96, 1 OCT 48, WHICH MAY BE USED.

16—54801-3 ☆ U. S. GOVERNMENT PRINTING OFFICE

ACTION NUMBER	RESPONSIBILITY		
	PRIMARY	SECONDARY	JOINT
1	DD/PROD		
2	DD/PROD		
3			DD/PROD-CON
4			DD/PROD-R/D-CON
5			DD/PROD-R/D
6	PROD		
7			
a, b & c	R/D		
d	PROD		
e			PROD-R/D-PERS
8	R/D		
9			
a	R/D		
b			PROD-F/P
c	PROD (TWB)		
10			
a & b			R/D-PROD
c	R/D		
d	PROD		
11			PROD-R/D
12			
a	PERS		
b			PERS-ENG
c, d & e	ENG		
f	F/P	PERS	

ACTION NUMBER	RESPONSIBILITY		
	PRIMARY	SECONDARY	JOINT
13			
a	TEC		
b & c	PROD		
d	PROD	P/P	
e	PROD		
f	PROD	COM	
14	R/D		
15 (a & b)	PROD		
16 (a through e)	R/D		
17			
a	PERS	PROD	
b	TEC		
c	PROD		
d	PERS		
e			TEC-PERS-PROD
f	PERS		
18			
a & b			PROD-R/D
c	R/D		
19			PROD-R/D
20	PROD		
21			PROD-R/D
22			
a			COM-PROD
b	COM		

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ACTION NUMBER	RESPONSIBILITY		
	PRIMARY	SECONDARY	JOINT
23			
a & b	COM		
c	R/D		
d			COM-R/D
24 (a through c)	COM		
25 (a through b)	COM		
26			COM-TNG
27	R/D		
28			
a	PROD		
b			PROD-R/D
29 (a through f)	P/P		
30	P/P		
31 (a through e)	PERS		
32 (a through c)	PERS		
d			PERS-TNG
e	PERS	SEC	
33	TNG		
34	P/P		
35	PROD		
36			P/P-PROD
37	PROD		
38 (a through e)	P/P		
39	P/P		
40	P/P		

~~CONFIDENTIAL~~

ACTION NUMBER	RESPONSIBILITY		
	PRIMARY	SECONDARY	JOINT
41	P/P		
42	P/P		
43	P/P		
44	P/P		

30 July 1954

~~TOP SECRET~~

MEMORANDUM FOR DEPUTY DIRECTOR, PRODUCTION
DEPUTY DIRECTOR, RESEARCH AND DEVELOPMENT
CHIEF, PLANS AND POLICY DIVISION
CHIEF, PERSONNEL DIVISION
CHIEF, COMMUNICATIONS DIVISION
CHIEF, TRAINING DIVISION

SUBJECT: "Robertson Report"

1. The attached study represents a summary and analysis of the salient points covered in the report made by the Special Study Group of the NSA Scientific Advisory Board (commonly known as the "Robertson Report"). The appendix lists a number of actions which should be taken in order to implement various recommendations made by the Group.

2. The attached study supersedes previous NSA Staff Studies and other summaries and lists of recommendations. Current directives, including DC/S memos of 9 April and 20 May 1954, concerning reports of implementation of the Group's recommendations, are hereby cancelled.

3. In order to effect implementing action, addressees will:

a. Make a careful study of the attached Summary and Appendix thereto.

b. Principals meet at 0900 hours, 6 August 1954, at Naval Security Station, Building 19, Room 19232B, for the purpose of apportioning individual or joint responsibility for each action listed in the Appendix to attachment.

(1) Chief, P/P, will prepare a consolidated report to the Chief of Staff not later than 10 August 1954, on the results of the meeting listing which action (use numbers, and letters if applicable, appearing in Appendix) each is individually or jointly responsible for. (Copies to be furnished addressees and S/Asst.)

c. In each Monthly Operational Summary, effective for the month of August 1954, report details of any significant progress made on any action for which responsible; or so state if none. In addition, effective with the month of September 1954, a verbal report on the preceding months actions will be made a part of the Directors' monthly briefing.

TOP SECRET

4. Attention is invited to the possibility that the actions listed include some which might, in whole or in part, be appropriate projects for the Technical Management Board.

L. H. FROST
Rear Admiral, USN
Chief of Staff

Incl:
Summary with Appendix A, Study
of the Special Study Group of
the NSASAB Submitted on 16 Oct 53

STUDY OF THE REPORT OF THE
SPECIAL STUDY GROUP OF THE NSASAB
SUBMITTED ON 16 OCTOBER 1953

SUMMARY

1. The Report points out that it is widely recognized that Russia now has, or will shortly reach, the capability of launching a large scale, devastatingly effective attack against the United States. This might be preceded by, or launched concurrently with, an attack upon other nations allied with us, or upon areas in which the U.S. has military, political, or industrial interests and investments.

2. The period of time, after Russian achievement of the capability to launch such an offensive, between crystallization of their intent to do so, and actual commencement of hostilities, is a critical one. It will be difficult to detect with certainty, since, although preparations for an attack might continue almost up to the commission of an overt act, the actual intent to commit that act might still be either lacking or conditional upon many factors.

3. It may be assumed, however, that there is a point in the continuum of preparatory steps beyond which intent would be conditioned only by factors over which Russia had no control. Among these factors would be discovery that we were sufficiently prepared, by adequate advance warning, that the chances of a successful attack would be greatly reduced.

4. It is apparent that forewarning of a potential attack will better enable us to resist it and blunt its force, or even to increase our defensive posture to such an extent as to cancel the decision to attack. It is also apparent that the longer in advance of attack that warning is received the greater are the chances of taking successful defensive measures. Tactical warning measures, such as radar screens, aerial patrols, ground observer systems, and the like, would give us at best an advance warning measured in hours. Our chances would be heightened immeasurably could we obtain strategic early warning. This can best be done by intelligence measures. Of the sources of such intelligence, COMINT especially if combined with ELINT, has an undoubtedly great potential, and might give us advance warning measured in days or even weeks.

5. It is important that we capitalize on this potential. To do this, a consistent, coordinated, and appropriately oriented plan is needed. Such a plan could be well based on the following realistic arguments:

a. In preparing for a particular military operation, the Russian High Command must take certain specific steps.

b. For each possible military operation, it is possible to postulate what these steps would be and the approximate time span of each.

c. Many of these steps will require the concerted action of a large number of persons, located at widely separated points.

d. Coordination of these steps, spread over space and time, will require numerous communications, which will cause an increase over normal for some of the links involved. On other links, the initiation of, or completion of, certain steps will result in a decrease of traffic to below-normal amounts.

e. Soviet agencies concerned will find it necessary to use radio over some of the links involved; they will be forced on at least some of these links to use frequencies which are interceptable by us; some, if not all, of these interceptable links will necessarily reflect changes from their normal traffic load caused by the steps taken in preparing for the operation concerned.

f. Even if we are deprived of other methods of obtaining information from these links, we can obtain quantitative measures of the volumes of traffic passed on each, and detect variations from the norm of each. Comparison of actual variations with predicted variations expected from postulated actions, should give us a clue to steps actually in progress.

6. We should therefore adopt and develop as our basic plan for obtaining strategic early warning from COMINT, a system whereby we might obtain valid indications of Russian intentions by means of quantitative analyses of the communications on those Soviet* radio links which they cannot avoid subjecting to our scrutiny. Denial of other methods of obtaining information from Soviet communications might well make this basic plan our "last ditch" plan.

7. The amount and quality of information obtainable for strategic early warning can be increased above that envisaged for the basic plan by taking the following steps:

a. Increase our intercept capability so as to increase the number of signals that the Soviets cannot avoid subjecting to our scrutiny.

*Including satellite and other Soviet-dominated nations.

b. Increase the information obtained from intercept by:

(1) Increasing the information obtainable from T/A Fusion.
(2) Increasing the information obtainable from Special Intelligence.

c. Increase the speed of conveying information to intelligence channels.

d. Improve the technological and personnel potential of the national COMINT effort by:

(1) Increasing the scope of NSA's current technological research and development.
(2) Pressing for improvement of the personnel situation within the national COMINT structure.

e. Improve the intelligence obtainable by fusing ELINT into the COMINT effort at all echelons.

f. Improve the use of the intelligence gained by providing a complete and coordinated indicator system for the national intelligence effort.

8. The Appendix lists various actions, arranged as nearly as possible in the sequence implied in paragraphs 6 and 7 above, which are indicated as a means for implementing recommendations made by the Special Study Group.

9. Although certain aspects of some of the recommendations made involve considerations beyond the normal scope of internal NSA action, the initiation of all of them is considered to be within the over-all scope of NSA's current responsibility and authority. Their accomplishment will reflect NSA's position of justifiably agressive leadership in all matters directly related to the national COMINT mission. The success of the national COMINT and Intelligence efforts will be determined when the Russian intent to use Soviet capabilities crystallizes. When hostilities commence, the peak of the national intelligence effort will have passed.

APPENDIX A

1. Determine, by logical analysis and postulating, the probable preparatory steps, which of those Soviet communication links currently interceptable by us would show significant variations in traffic volume if preparations were underway to attack the U.S. or areas in which the U.S. has vital interests.

2. Establish, for various seasons, and for other conditions the existence of which is verifiable, normal traffic volumes for these links.

3. Devise and inaugurate a system for obtaining rapid reports, from stations covering these links, of any significant variation from normal traffic volume on each.

4. Develop and install a centralized display and control board, where these variations could be plotted against time; whereby, mechanically or electronically, the probable purport of the sum of reported variations could be predicted; from where checks on other potential indicators could be initiated; and from where rapid dissemination of evaluated indications could be made to intelligence authorities.

5. Develop machine (computer, analogue) methods for summing and translating quantitative traffic measures into indications; weighting these indications according to probability; checking against collateral information; and calculating most probable causes of the effects observed.

6. Expand intercept activities to the extent necessary to monitor traffic volumes on all Soviet links determined (Step 1 above) to be significant.

7. Develop methods and equipment which will improve reception on frequencies now theoretically interceptable by us:

a. Improve receivers.
b. Improve audio and other recording equipment.
c. Improve [redacted] equipments, including means for demultiplexing, unscrambling, and precision recording.
d. Install and develop methods for using propagation measuring equipment to improve intercept control.
e. Augment NSA scientific and engineering staff in order to assist Services in design and placement of antenna fields and intercept positions so as to take utmost advantage of propagation phenomena.

8. Develop methods and equipment which will make interceptable links not now within our capabilities to monitor:

a. VHF

b. SHF

c. Noise communications

d. [redacted]

e. Frequency dispersal systems.

EO 3.3(h)(2)
PL 86-36/50 USC 3605

9. Improve facilities for enabling the intercept operator to determine the identity of transmitters which he hears.

a. Develop means, such as multiple unit antennas, whereby operator can by himself determine direction of arrival of a signal.

b. Increase co-location of D/F[redacted], MOA, and intercept facilities.

c. Improve communications between intercept operators and D/F,[redacted] MOA positions.

10. Improve methods of transmitter identification:

a. Improve[redacted] equipment and analytical methods.

b. Develop MOA and other operator identification techniques, recording and analytical equipments and methods.

c. Develop better methods of radio position fixing, such as Inverse Loran.

d. Improve field co-ordination of all methods with each other and with intercept.

11. Develop improved methods of intercepting, recording, and utilizing immediate action voice communications, including automatic time registering devices.

12. Improve the quality of intercept operations by personnel actions to:

a. Increase incentives for re-enlistment.

b. Improve recruitment, selection, and proficiency evaluation criteria and techniques, including use of psychometric methods.

c. Pinpoint, intensify, and improve training given in intercept techniques.

d. Improve training and development of intercept supervisors.

e. Train officers in intercept and transmitter identification techniques.

f. Take action to solve problems in connection with using civilians as intercept operators.

13. Increase T/A potential at points of intercept by:

a. Educating and training operators and supervisors in rudiments of T/A.

b. Providing traffic analysts for each point of intercept.

c. Decentralizing T/A operations to intercept stations by moving T/A units forward.

d. Increase exchange of T/A and collateral information between forward units and more centralized T/A units.

e. Increase authority of forward units to originate messages disseminating urgent intelligence information derived by them.

f. Provide guidance relative to (e) above, on appropriate addressees; and provide adequately rapid communication channels.

14. Establish a small research group to carry out research and (guide) development(s) on new methods of traffic analysis, including adaptation of certain problems to high speed machines.

15. Use more extensively the existing T/A Fusion sources to construct the pattern of Soviet operations by:

a. Intensifying our intercept and T/A efforts during Soviet

maneuvers in order to build up as complete a picture as possible.

b. Making special, separate, and intensive studies of all T/A Fusion material to construct an accurate pattern of the behavior of the

[redacted]

16. Perform additional and more theoretical studies in connection with the T/A Fusion effort with a view to:

a. Finding new approaches in various fields relevant to the problems.

b. Developing new methods of analysis.

c. Developing new high speed machine techniques to the problems.

d. Developing new automatic semantic processing equipment for use in T/A, voice, brevity codes, etc.

e. Applying more of the highly developed mathematical principles of machine programming to the problems.

17. Improve the quality of T/A Fusion by personnel actions to:

a. Improve recruitment and selection criteria and techniques, including use of psychometric methods.

b. Pinpoint, intensify, and improve training given in analytic techniques.

c. Improve proficiency evaluation of analysts.

d. Establish a sound salary and promotion policy and have it as favorable to traffic analysts as it is to cryptanalysts.

e. Improve the quality and proficiency of the analytic supervisors.

f. Provide for the rotation of personnel through the COMINT structure to keep it sensitive. Due regard should be given to continuity of effort.

18. Improve the computational support available to NSA by:

a. Increasing the number of skilled programmers on the NSA staff by educating qualified NSA personnel in industrial and educational institutions and by hiring programmers. ("Programmer" includes those educated, trained, and experienced in the highly complex theory and mathematics of programming, as opposed to those skilled in scheduling machine times, applying fundamental computational orders, making various plugging combinations and performing maintenance on existing machines.)

b. Investigating thoroughly the possibility of utilizing cleared indoctrinated personnel skilled in the art of programming who may be available outside NSA.

c. Developing and applying new types of high speed analytic machinery.

19. Continue to give the highest possible priorities to the solution of the [redacted] systems.

20. Maintain a firm and consistent policy to control and regulate the transfer of personnel familiar with the [redacted] problems to other activities with a view to maintaining the highest possible degree of continuity of the several efforts involved. Due regard should be given to the psychological and career development factors involved.

21. Augment the existing staff on these high-level problems by several additional top-flight analysts, utilizing pyschometric methods of proficiency evaluation and selection.

22. Increase the speed of conveying information to intelligence channels:

a. Continue detailed time studies of traffic delays with a view to:

(1) Reduction of processing times in message centers at all echelons.
(2) Routing overseas traffic through the best possible routes.

b. Reduce transit time of high precedence and other traffic by studying and adopting some of the principles now available (including those reported by the Programs Research Unit of the Johns Hopkins University).

23. Seek ways to increase the number of groups per day being handled by electrical communications:

a. Monitor proposed improvements for COMINT communications systems.

b. Monitor contemplated developments such as automatic switching and on-line encryption.

c. Develop better and faster encryption devices.

d. Achieve higher transmitting speeds.

24. Provide more efficient utilization of radio frequencies and existing land-line facilities:

a. Use the back scatter measurement technique to determine the most effective radio frequency to use at a given time. (Such methods have been published and should be carefully studied.)

b. Devise a method of pooling all available radio frequencies with assignments to individual stations on an immediate basis to meet ionospheric conditions.

c. Provide constant attention and practice in the use of alternate radio links and cable facilities that can be available if severe jamming of radio circuits incident to hostilities should render the regular circuits inoperable.

25. Improve the operations of the entire communications networks to:

a. Insure against personnel failures wherever possible.

b. Assure the timely delivery of messages to their addressees.

26. Improve training and instruction of communications personnel.

27. Establish the active policy that, wherever possible, NSA will perform initial, broad, and high-level research and establish requirements, but that the detailed research, development, and construction work will be done through contracts with commercial companies.

28. Study carefully the entire concept of military, diplomatic, and commercial communications to:

a. Reveal those aspects of the communications networks which

are most susceptible to communications intelligence activities.

b. Relate the value of the intelligence gained through exploitation of these aspects to the cost of exploitation and to the cost to the enemy of security measures which would reduce their vulnerability.

29. Establish a competent and versatile research group at NSA staff level to:

a. Initiate and carry out basic research on the theory of communications intelligence.

b. Review constantly the current world-wide technical status of all COMINT operations.

c. Perform and guide general theoretical research.

d. Recognize the need for additional broad research in specific areas.

e. Relate the long range research needs to long range intelligence requirements.

f. Monitor and study all accessible commercial technical developments having applicability, directly or indirectly, to COMINT problems areas.

g. Relate NSA's needs to commercial developments wherever possible.

30. Explore thoroughly all aspects of utilizing a "captive organization."

31. Improve the research and development potential of the national COMINT effort by personnel actions to:

a. Improve the salary scales to induce good men to enter and remain in this field.

b. Provide recognition for achievements.

c. Improve working conditions.

d. Explore the extent to which scientists and engineers from universities and industrial laboratories could be usefully borrowed for varying periods of time.

e. Augment the existing scientific and engineering staffs at NSA with a view to providing direct assistance to the Services on all COMINT technological matters.

32. Improve the personnel potential of the national COMINT effort:

a. Establish more high-level civilian positions.

b. Provide more opportunities for selective advancement of well qualified civilian personnel.

c. Establish a satisfying career COMINT Service for officers as well as enlisted men in the Army and Air Force and revive it in the Navy.

d. Assure that supervisors of all COMINT activities have expert knowledge of the activity they supervise by:

(1) Training
(2) Selective assignment procedures.

e. Re-examine recruitment policies in the light of realistic security limitations.

33. Educate NSA personnel at all echelons on the general character of ELINT and its applications to the COMINT effort.

34. On the basis that certain phases of ELINT and COMINT are mutually complimentary, establish working ELINT-COMINT liaison between NSA and all agencies now conducting ELINT operations. /These include ANEEG (Army-Navy Electronic Evaluation Group), USAFSS, SAC, ATIC, and CIA./

35. Provide direct communications between field ELINT units and the nearest field COMINT unit.

36. Provide adequate coordination and cooperation between ELINT and COMINT units at all echelons.

37. Include data derived from ELINT in all pertinent COMINT processes, studies, and developments.

38. Develop postulated, normative enemy plans:

a. Study existing postulated plans carefully and completely.

b. Study pertinent historical documents.

c. Work all available intelligence data into the plans.

d. Utilize our own operational experience.

e. Test phases of the plan by experimental operations.

39. Develop a set of integrated indicators based on the postulated enemy plans.

40. Quantify all intelligence information (COMINT, ELINT, collateral) underlying the direct indicators of the imminence of war. This is especially applicable to the Soviet Long Range Air Force and the Soviet Air Defense System.

41. Develop measures or indices of activities, actual or postulated, of various types.

42. Develop standardized display systems that will show the development of the indices or measures as functions of time.

43. Measure the imminence of hostilities against the postulated plans.

44. Study the possibility of applying analytical machine methods to the integrated indicator system.

STUDY OF THE REPORT OF THE SPECIAL STUDY GROUP OF THE NSASAB SUBMITTED ON 16 OCTOBER 1953

SUMMARY

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TOP SECRET//S

APPENDIX A

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EO 3.3(h)(2)
PL 86-36/50 USC 3605

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8. Develop methods and equipment which will make interceptable links not now within our capabilities to monitor:

a. VHF

b. SHF

c. Noise communications

d. [redacted] systems

e. Frequency dispersal systems.

EO 3.3(h)(2)
PL 86-36/50 USC 3605

9. Improve facilities for enabling the intercept operator to determine the identity of transmitters which he hears.

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TOP SECRET//S

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e. Train officers in intercept and transmitter identification techniques.

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a. Intensifying our intercept and T/A efforts during Soviet

maneuvers in order to build up as complete a picture as possible.

b. Making special, separate, and intensive studies of all T/A Fusion material to construct an accurate pattern of the behavior of the [redacted]

16. Perform additional and more theoretical studies in connection with the T/A Fusion effort with a view to:

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b. Developing new methods of analysis.

c. Developing new high speed machine techniques to the problems.

d. Developing new automatic semantic processing equipment for use in T/A, voice, brevity codes, etc.

e. Applying more of the highly developed mathematical principles of machine programming to the problems.

17. Improve the quality of T/A Fusion by personnel actions to:

a. Improve recruitment and selection criteria and techniques, including use of psychometric methods.

b. Pinpoint, intensify, and improve training given in analytic techniques.

c. Improve proficiency evaluation of analysts.

d. Establish a sound salary and promotion policy and have it as favorable to traffic analysts as it is to cryptanalysts.

e. Improve the quality and proficiency of the analytic supervisors.

f. Provide for the rotation of personnel through the COMINT structure to keep it sensitive. Due regard should be given to continuity of effort.

18. Improve the computational support available in NSA by:

a. Increasing the number of skilled programmers on the NSA staff by educating qualified NSA personnel in industrial and educational institutions and by hiring programmers. /"Programmer" includes those educated, trained, and experienced in the highly complex theory and mathematics of programming, as opposed to those skilled in scheduling machine times, applying fundamental computational orders, making various plugging combinations and performing maintenance on existing machines./

b. Investigating thoroughly the possibility of utilizing cleared indoctrinated personnel skilled in the art of programming who may be available outside NSA.

c. Developing and applying new types of high speed analytic machinery.

19. Continue to give the highest possible priorities to the solution of the [redacted] systems.

20. Maintain a firm and consistent policy to control and regulate the transfer of personnel familiar with the [redacted] problems to other activities with a view to maintaining the highest possible degree of continuity of the several efforts involved. Due regard should be given to the psychological and career development factors involved.

21. Augment the existing staff on these high-level problems by several additional top-flight analysts, utilizing pyschometric methods of proficiency evaluation and selection.

22. Increase the speed of conveying information to intelligence channels:

a. Continue detailed time studies of traffic delays with a view to:

(1) Reduction of processing times in message centers at all echelons.
(2) Routing overseas traffic through the best possible routes.

b. Reduce transit time of high precedence and other traffic by studying and adopting some of the principles now available (including those reported by the Programs Research Unit of the Johns Hopkins University).

23. Seek ways to increase the number of groups per day being handled by electrical communications:

a. Monitor proposed improvements for COMINT communications systems.

b. Monitor contemplated developments such as automatic switching and on-line encryption.

c. Develop better and faster encryption devices.

d. Achieve higher transmitting speeds.

24. Provide more efficient utilization of radio frequencies and existing land-line facilities:

a. Use the back scatter measurement technique to determine the most effective radio frequency to use at a given time. (Such methods have been published and should be carefully studied.)

b. Devise a method of pooling all available radio frequencies with assignments to individual stations on an immediate basis to meet ionospheric conditions.

c. Provide constant attention and practice in the use of alternate radio links and cable facilities that can be available if severe jamming of radio circuits incident to hostilities should render the regular circuits inoperable.

25. Improve the operations of the entire communications networks to:

a. Insure against personnel failures wherever possible.

b. Assure the timely delivery of messages to their addressees.

26. Improve training and instruction of communications personnel.

27. Establish the active policy that, wherever possible, NSA will perform initial, broad, and high-level research and establish requirements, but that the detailed research, development, and construction work will be done through contracts with commercial companies.

28. Study carefully the entire concept of military, diplomatic, and commercial communications to:

a. Reveal those aspects of the communications networks which

are most susceptible to communications intelligence activities.

b. Relate the value of the intelligence gained through exploitation of these aspects to the cost of exploitation and to the cost to the enemy of security measures which would reduce their vulnerability.

29. Establish a competent and versatile research group at NSA staff level to:

a. Initiate and carry out basic research on the theory of communications intelligence.

b. Review constantly the current world-wide technical status of all COMINT operations.

c. Perform and guide general theoretical research.

d. Recognize the need for additional broad research in specific areas.

e. Relate the long range research needs to long range intelligence requirements.

f. Monitor and study all accessible commercial technical developments having applicability, directly or indirectly, to COMINT problems areas.

g. Relate NSA's needs to commercial developments wherever possible.

30. Explore thoroughly all aspects of utilizing a "captive organization."

31. Improve the research and development potential of the national COMINT effort by personnel actions to:

a. Improve the salary scales to induce good men to enter and remain in this field.

b. Provide recognition for achievements.

c. Improve working conditions.

d. Explore the extent to which scientists and engineers from universities and industrial laboratories could be usefully borrowed for varying periods of time.

e. Augment the existing scientific and engineering staffs at NSA with a view to providing direct assistance to the Services on all COMINT technological matters.

32. Improve the personnel potential of the national COMINT effort:

a. Establish more high-level civilian positions.

b. Provide more opportunities for selective advancement of well qualified civilian personnel.

c. Establish a satisfying career COMINT Service for officers as well as enlisted men in the Army and Air Force and revive it in the Navy.

d. Assure that supervisors of all COMINT activities have expert knowledge of the activity they supervise by:

(1) Training
(2) Selective assignment procedures.

e. Re-examine recruitment policies in the light of realistic security limitations.

33. Educate NSA personnel at all echelons on the general character of ELINT and its applications to the COMINT effort.

34. On the basis that certain phases of ELINT and COMINT are mutually complimentary, establish working ELINT-COMINT liaison between NSA and all agencies now conducting ELINT operations. [These include ANEEC (Army-Navy Electronic Evaluation Group), USAFSS, SAC, ATIC, and CIA.]

35. Provide direct communications between field ELINT units and the nearest field COMINT unit.

36. Provide adequate coordination and cooperation between ELINT and COMINT units at all echelons.

37. Include data derived from ELINT in all pertinent COMINT processes, studies, and developments.

38. Develop postulated, normative enemy plans:

a. Study existing postulated plans carefully and completely.

b. Study pertinent historical documents.

c. Work all available intelligence data into the plans.

d. Utilize our own operational experience.

e. Test phases of the plan by experimental operations.

39. Develop a set of integrated indicators based on the postulated enemy plans.

40. Quantify all intelligence information (COMINT, ELINT, collateral) underlying the direct indicators of the imminence of war. This is especially applicable to the Soviet Long Range Air Force and the Soviet Air Defense System.

41. Develop measures or indices of activities, actual or postulated, of various types.

42. Develop standardized display systems that will show the development of the indices or measures as functions of time.

43. Measure the imminence of hostilities against the postulated plans.

44. Study the possibility of applying analytical machine methods to the integrated indicator system.