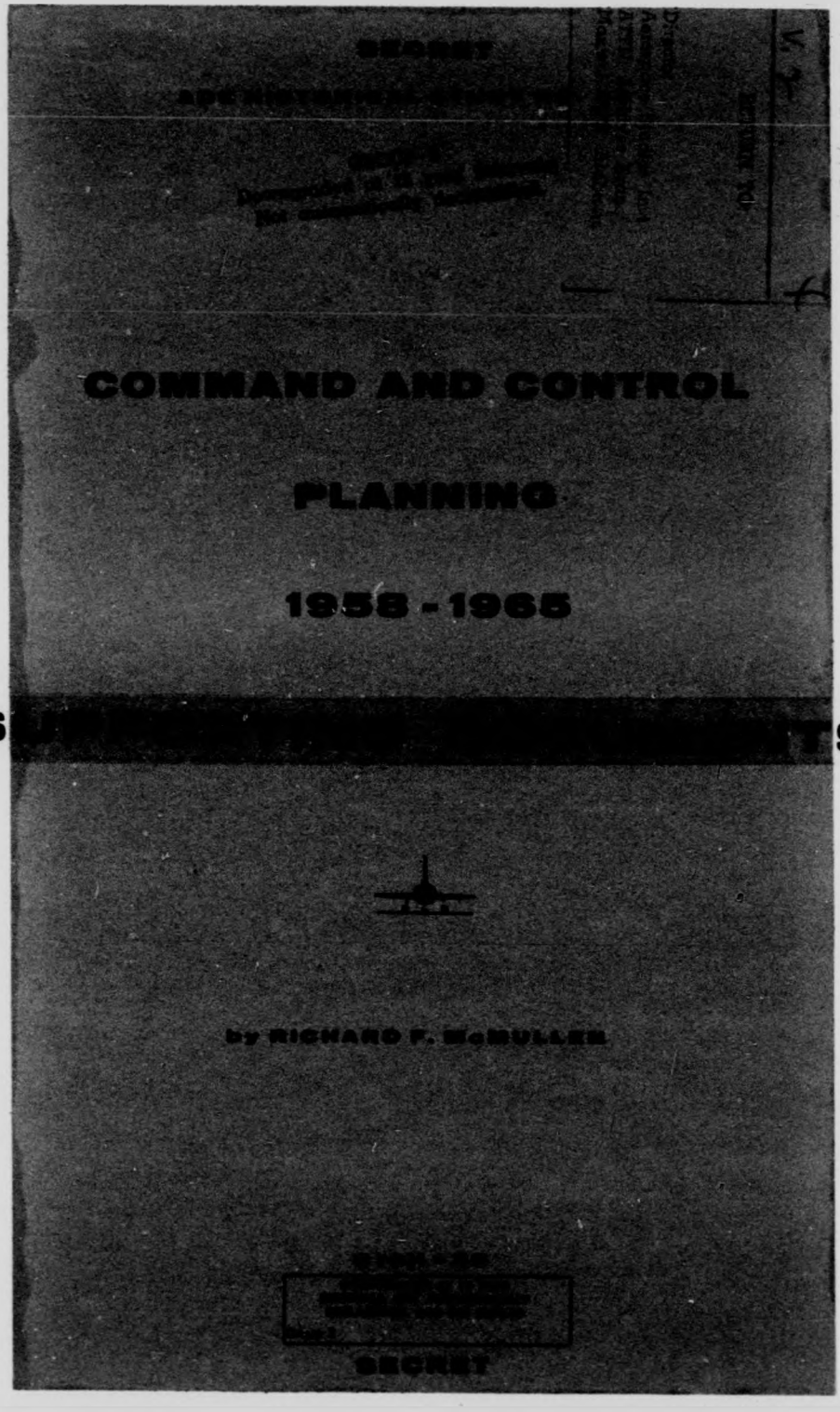
SECRET
COMMAND AND CONTROL
PLANNING
1955 - 1965
by RICHARD F. McMULLEN
SECRET

SUPPORTING DOCUMENT NO 1

R011636Z
FM HQ USAF
TO ADC
AFSC
NORAD
CJS 2450 [illegible]
CCS C 1327A [illegible]
HQS RCAF OTTAWA ONTARIO CANADA
AFLC
GEEIA
ESD
ROAMA

SECRET AFODC-OP 76011.
SUBJECT: 416L [illegible] PART I.
RECENT OSD AND DC [illegible] DECISIONS
TO REORIENT THE 416 [illegible] AVAILABILITY. CONTINUED
USE OF SAGE IN THE [illegible] AUTHORIZED. THE
CURRENT 416L [illegible] PENDING CLARIFICATION
OF THE DEGREE OF [illegible] A POST ICBM
NATIONAL AEROSPACE SURVEI[illegible] CONTROL, AND ARMING SYSTEM. THE
AIR FORCE HAS BEEN DIRECTED, [illegible] TO REORIENT THE SYSTEM TO
PROVIDE BACKUP CO[illegible] AT REDUCED ESTABLISHED RESOURCE LEVELS.

PAGE TWO
TO ATTAIN THE BACKUP CAPABILITY, COMPENSATING REDUCTIONS IN 416L
ARE TO BE MADE IN PLACES CAUSING MINIMUM LOSS TO OVERALL SYSTEM
PERFORMANCE. SPECIFIC FUNDING AND IMPLEMENTATION AUTHORITY IS NOW
BEING REQUESTED TO IMPLEMENT A PROGRAM IN ACCORD WITH THE FOLLOWING
CRITERIA. PART II. IMPLEMENTATION OF THE BACKUP PROJECT WILL BE
IN TWO PHASES. PHASE I WILL PROVIDE MANUAL CAPABILITY IN CONFORMANCE
WITH CURRENT ACTIONS UNDERTAKEN IN RESPONSE TO 10 APRIL 1961 NORAD
MODE III PLAN. THIS IS THE PROGRAM WHICH 23 MILLION DOLLAR
FY 62 FUNDING WAS APPROVED FOR LEASED COMMUNICATION AND MILITARY
CONSTRUCTION FOR FALLOUT SHIELDING AND SHELTERS AND BACKUP POWER AT
SELECTED SITES. IN PHASE II, NEW EQUIPMENT TO PROVIDE SEMI-
AUTOMATIC CONTROL WILL BE PLACED AT SELECTED RADAR SITES. MAXIMUM
OF 24 BACKUP CONTROL SITES HAS BEEN AUTHORIZED. GENERAL SEMI-
AUTOMATIC CAPABILITY AND CHARACTERISTICS TO BE PROVIDED ARE: TOTARC
AND MANNED INTERCEPTOR CONTROL, AUTOMATIC OR SEMI AUTOMATIC DATA
INPUT FROM THREE TO FIVE LONG RANGE RADAR INPUTS AND FROM GAP
FILLERS WHERE REQUIRED, FORTY TRACKS AND 10 SIMULTANEOUS INTERCEPTS,
AND MINIMAL NETTING BETWEEN CONTROL CENTERS. CAPITAL INVESTMENT
FOR PHASE II WILL BE KEPT TO APPROXIMATELY 98 MILLION DOLLARS.
MANPOWER FOR BACKUP [illegible] PROGRAM

341

SUPPORTING DOCUMENT NO. /

WITHIN CURRENT [illegible], PART III. APPROVAL HAS BEEN
GIVEN FOR CHANGES IN [illegible] TO COMPENSATE FOR BACKUP COSTS
AS FOLLOWS: [illegible] SEARCH RADAR QUANTITY
FROM 17 to [illegible] AND THE [illegible] OF FPS-[illegible] HEIGHT FINDERS FROM
50 TO 24. REDUCE PROJECTED FY 62 [illegible] OF FPS-74 GAP FILLER
MODIFICATIONS FROM 136 TO [illegible] AND PROCEED WITH A STUDY TO DETERMINE
FEASIBILITY OF [illegible] ON INTERIOR OF ZI.
DELETE FROM PROG[illegible] DIRECTIONAL ANTENNAS, 27 EACH
AUTOMATIC LOG DATA [illegible] THE DISPLAY FOR THE [illegible] AIR
DIVISIONS, [illegible] AND HEIGHT ([illegible]). PASSIVE
DETECTION [illegible] MODERNIZATION PROJECT:
HOWEVER, THIS [illegible] FOR BACKUP SYSTEM.
THIS SPECIFIC [illegible] BY [illegible] CORRESPONDENCE.
[illegible] IN ACCORDANCE WITH THESE
CHANGES AND [illegible], PART IV. IN
OBTAINING APPROVAL [illegible] LIMITATIONS
APPLIED. FIRST, TOTAL [illegible] STAY WITHIN LIMITS NOW
APPROVED IN ACHIEVING A [illegible]. SECOND, THIS IS DEFI-
NITELY AN ALERTING BACKUP [illegible] AS DISTINGUISHED FROM BEING AN
ALTERNATE TO SAGE. OPERATIONAL [illegible]ES WILL HAVE APPRECIABLY LESS

[illegible], CAPACITY AND [illegible] THAN SAGE. THIRD, AN AIR
TRAFFIC CONTROL INTEGRATION [illegible] HAS NOT BEEN DEFINED AT THIS
TIME. THE BACKUP [illegible] CANNOT BE DESIGNED OR CONFIGURED TO MEET
FAA INTEGRATION [illegible]. [illegible] ADC AND AFSC WILL TAKE THOSE
NECESSARY ACTIONS TO [illegible] THIS DIRECTIVE AND TO INITIATE AND
COMPLETE THE NECESSARY [illegible] AND SYSTEM ENGINEERING ACTIONS
REQUIRED. REQUEST AFSC [illegible] PACKAGE PROGRAM DOCUMENTATION AND
TAKE RELATED ACTIONS IN [illegible] WITH PROCEDURES OUTLINED IN
[illegible] 375 SERIES WITH ADC TO PROVIDE THE NECESSARY OPERATIONAL INPUTS
AS REQUIRED. THIS [illegible] WILL EFFECT APPROPRIATE COORDINATION
WITH NORAD. PART VI. [illegible] RCAF. THE FOREGOING ACTIONS
[illegible] CHANGES TO [illegible] AS DISCUSSED WITH YOUR
REPRESENTATIVES AT THIS [illegible] ON 5 OCT 61. ONLY ONE EQUIPMENT
PACKAGE WITHDRAWAL, THE [illegible], DIRECTLY INVOLVES CADIN, HOWEVER,
THE BACKUP CONTROL PROJECT [illegible] AFFECT OVERALL SYSTEM CONSIDERATIONS.
[illegible] PLANS CAN BE DEVELOPED [illegible] WITH RCAF PARTICIPATION AND, THEREFORE,
SHOULD BE THE SUBJECT OF JOINT DISCUSSIONS AT AN EARLY DATE. SHOULD
YOU DESIRE FURTHER [illegible], THIS [illegible] IS PRE-
PARED TO HAVE A [illegible] CONVENIENCE. YOUR
COMMENTS AND/OR [illegible] PROGRAM ARE SOLICITED.

3/2

SUPPORTING DOCUMENT NO. 1

[illegible]
[illegible] REQUEST [illegible] IT IS RECOMMENDED THAT
ADDITIONAL COORDINATION [illegible] ALTER THESE NOW EXISTING.
PART VII. FOR ALC. [illegible] A REPLY TO THE FOLLOWING
CORRESPONDENCE. A. AMC [illegible] DATED 7 OCT 61; B. AMC TSG
ADLNC 2287 DATED 14 OCT 61; C. AMC [illegible] 2287 DATED 19 OCT 61;
D. COVER AND LETTER, [illegible] COPIES OF SAGE DATED 27 SEP 61.
NOTE: 1, IT IS TO BE [illegible] RESPONSE TO SAGE UTILIZATION
AND OTHER ACTIONS RELATIVE TO [illegible] 126 ARE INCLUDED IN PRESENT
JCS ACTIONS. SCH.

345

SUPPORTING DOCUMENT NO. /

PART FIVE

ALSO REQUEST THAT [illegible] IT IS CONSIDERED THAT ADDITIONAL COORDINA[illegible] ALONE THOSE NOW EXISTING.

PART VII. FOR AOC. THIS [illegible] CONSTITUTES A REPLY TO THE FOLLOWING CORRESPONDENCE. A. AOC SUC [illegible] DATED 7 OCT 61; B. AOC USG ADLEC 2297 DATED 14 OCT 61; C. AOC USG ADLEC 2297 DATED 10 OCT 61; D. COVER AOC LETTER, [illegible] OF SAGE DATED 27 SEP 61. IN GENERAL, IT IS TO BE RECOGNIZED THAT RESPONSE TO SAGE UTILIZATION AND OTHER ACTIONS RELATING TO PROJECT 126 ARE INCLUDED IN PRESENT SCD ACTIONS. SCDS.

3/43

SECRET *(When filled in)*

4-31710 [illegible]

M

28 Dec

SUPPORTING DOCUMENT NO. 2

9 Jan 1962

[illegible] RJWFAL
DE RJEZHQ 349
R 291536Z
FM HQ USAF
TO ZEN/CANAIRHED OT[illegible]
RJWFALB/NORAD ENT AFB [illegible]
RJWFAL/ADC ENT AFB [illegible]
INFO ZEN/CANAIRDEF [illegible]
ZEN/CANAIRWASH DC
ZEN/ESD L G HANS[illegible]
BT

ACTION [illegible]
INFO [illegible]

S-E-C R E T [illegible]
REFERENCES: [illegible] ... MESSAGE
NPPP-CH X014 [illegible] ... [illegible] BACK-
UP CONTROL. THIS [illegible]
CONCEPTS AND [illegible] ... [illegible]TED
AND WILL RECEIVE [illegible] ... A
SURVIVABLE BACK-UP [illegible]
ANCE WITH OSD [illegible]
NCC'S HAS BEEN [illegible]
SURVIVABLE BACK-UP [illegible] ... IT IS

PAGE TWO RJEZHQ [illegible]
NOTED THAT AN [illegible]
CONFIGURATION IN [illegible]
PROVIDE IN THIS [illegible]
SUPPORT IS URGENTLY [illegible]
INTERPOSES NO OBJECTION [illegible]
PARTS I, II, III, IV [illegible]
TO PARTS V D AND [illegible]
FOR A [illegible] OF 5 STA[illegible]
INTERPOSE NO OBJECT[illegible]
TO PERMIT POSSIBLE [illegible]
THIS HEADQUARTERS [illegible]
COORDINATE DIRECTLY [illegible]
CONFIGURATION IN CANADA [illegible]
DETERMINATIONS OF [illegible]
IN THIS PLANNING [illegible]
SYSTEM IN THE U.S. [illegible]
ASSURED THAT [illegible]
[illegible] REORIENTATION [illegible]
THE DOD APPROVED [illegible]
ACTION IT IS SUGGESTED [illegible]

PAGE THREE RJEZHQ [illegible]
CONDUCTED AT [illegible]
BT
[illegible]

9 MAR 1962

ADMIN (ADC) FORM 66A, FEB 61

SECRET *(When filled in)*

SECRET

SUPPORTING DOCUMENT NO. 3

THE SECRETARY OF DEFENSE
WASHINGTON

March 13, 1962

MEMORANDUM FOR THE SECRETARY OF THE ARMY
THE SECRETARY OF THE AIR FORCE
THE CHAIRMAN, JOINT CHIEFS OF STAFF

SUBJECT: Objectives for Continental Air and Missile Defense Forces (U)

References: (a) ASAF (R&D) to SecDef, Subj: General War Defense Force Program Package Annex (416L), dated 29 Jan 62.

(b) Memo from SecDef to Secretary of the Army, Navy, Air Force and JCS, Subj: SAGE Reorientation, dtd 5 June 1961.

(c) Memo from SecDef to Secs/Military Departments, Subj: FY 1963 Program Package Guidance, dated 22 Sep 61.

As a result of a general appraisal of SAGE, I decided on 5 June 1961 that the concept of backup control for interceptors and the concept of improving interceptor survivability by means of dispersal should be implemented (reference b).

On 22 September 1961, in connection with review of FY 1963 program packages (reference c) I reaffirmed that a semi-automatic backup should be provided within the funding proposed for the 416L Control and Warning System. A proposed interceptor dispersal program was also approved at the cost of $5 million in FY 1963 and $0.5 million in FY 1964. The prime objective of these two programs is to reduce the vulnerability to ICBM attack of the anti-bomber system, within reasonable costs and time, and to provide limited but assured weapon and control capability against a manned bomber attack following a ballistic missile attack.

In this same action of 22 September 1961 certain Air Force programs were not approved: procurement of 200 F-106's; new procurement and construction for seven additional BOMARC squadrons, dispersal of existing BOMARC squadrons (at a cost of approximately $70 million) pending submission of an analysis of increased effectiveness, both in terms of survival potential under missile attack and effectiveness in air battle under ground environments degraded from the SAGE environment. The rationale for rejecting the F-106 was that its performance was marginal, particularly

045

SECRET

in regard to endurance, reliability and operation in semi-autonomous modes with a degraded ground environment. The new procurement for BOMARC was rejected because of its relatively high cost and vulnerability.

In responding to the above, the Department of the Air Force on 29 January 1962 proposed a reorientation of the USAF 416L Program (reference a), which would accomplish a backup command and control capability in two steps:

Phase I. A manual backup system exploiting manual operations with existing equipment to become available to the operating commands this year.

Phase II. A semi-automatic backup control system, at 34 stations, which would become operational at the first stations in 1963 and be completed in 1965.

In order to provide for the installation of the Phase II semi-automatic backup system, the cancellation of procurement actions from FY 1961, FY 1962, and FY 1963 funds for certain new items of equipment is proposed in the amount of approximately $93 million of P-800 funds as outlined in reference a.

In view of the above, approval is given to proceed on the following basis.

(a) The Phase I manual backup program is to be completed as soon as possible, and the relation of this mode of operation to the SAGE modes of operation is to be clearly delineated to the operating forces by appropriate orders issued by CINCNORAD.

(b) The cancellation of approximately $93 million of procurement of USAF P-800 funds in the USAF 416L program is authorized as requested in reference a.

(c) The Phase II semi-automatic backup control system should proceed on the assumption that approximately 34 NORAD Alternate Control Centers (NACC) will be implemented at a total cost which will not exceed $100 million. This cost includes installation, test, check-out and the procurement of initial spares. The initial procurement should be limited to equipment for 17 NACC's. The location of the initial NACC's should be reviewed and a final determination made after due consideration is given to the weapons deployment studies requested in paragraph (e) below. I am requesting that the Director of Defense Research and Engineering monitor the technical aspects of the semi-automatic backup program to insure that the system design is austere yet consistent with achieving a high probability of interceptor and weapon kill

against small raids.

(d) The desirability of achieving an integrated SAC-ADC dispersal plan is reaffirmed. The planning already underway within the Air Force should proceed on the assumption that approximately $30 to $40 million of capital cost improvements may be funded for ADC interceptor dispersal. Specific details of the interceptor dispersal program are to be submitted at an early date for separate approval action.

(e) There is a concern that the weapons capability available within the provisions of paragraph (d), above, may be inadequate for protection of some areas of the United States. Accordingly, I request that plans be devised by the JCS to strengthen the Northern perimeter defenses which will provide additional protection to the Strategic Retaliatory Forces (hardened ICBM bases), considering the following:

(1) Deployment of additional NIKE HERCULES batteries from forces now assigned for training purposes. Installation costs are not to exceed $10 to $15 million.

(2) Redeployment and dispersal of a portion of the existing BOMARC squadrons. Installation costs are not to exceed $40 million.

(3) Additional augmentation of the interceptor forces at dispersed bases by limited procurements of advanced interceptor configurations of existing airframes giving emphasis to range and endurance, low altitude and long range fire control capabilities. With respect to this plan, the objective is to achieve a dispersed interceptor force which is capable of surviving an initial ICBM attack, and of locating and destroying small reconnaissance-strike raids in a ground control environment which may be degraded.

I am requesting that the studies called for in paragraph (e), above, and the location of the initial NCC's called for in paragraph (c), above, be available on 1 June 1962 for review and approval.

s/Gilpatric

JOINT MESSAGEFORM

SECURITY CLASSIFICATION

SPACE BELOW RESERVED FOR COMMUNICATION CENTER

SUPPORTING DOCUMENT NO. 14

	PRECEDENCE	TYPE MSG (Check) BOOK	MULTI	SINGLE	ACCOUNTING SYMBOL	ORIG. OR REFERS TO	CLASSIFICATION OF REFERENCE
ACTION	ROUTINE						
INFO	ROUTINE		X		AF	X	

FROM: ADC ENT AFB COLO

TO: 25AIRDIV MCCHORD AFB WASH
26AIRDIV HANCOCK FLD NY
28AIRDIV HAMILTON AFB CALIF
29AIRDIV RICHARDS GEBAUR AFB MO
30AIRDIV TRUAX FLD WISC
32AIRDIV OKLA CITY AFS OKLA

INFO: COFS USAF
NORAD (MESSENGER)
CANAIRHED OTTAWA CANADA
ADC COMD CONTROL DEF SYS OFC LG HANSCOM FLD MASS
ADC COMPUTER PROGRAMMING & SYS TNG OFC SANTA MONICA CALIF

SPECIAL INSTRUCTIONS

Copies to:

ADABF-C
ADCMO-H
ADOOP-EO
ADOTT-C
ADMME-CA
ADOAC-ED
ADOAC-AN
ADPDP-PE
ADMLP-CA
ADIRP-R
ADOAC-C

[illegible] VALS;
[illegible] AG.

SPECIAL [illegible] REQUIRED
NOT RELEASE [illegible] NATIONAL
[illegible] CANADA

[illegible] will not be reproduced [illegible]

SECRET NOFORN EXCEPT CANADA FROM ADLSP 354

For RCAF CANUSECURITY applies. Action for each Air Division for OPP. Info: NORAD, NOOP-E; HQ USAF, AFOOP-DE-WC; HQ RCAF, Operations; APASTO, AD8PD; CCDSO.

DATE	TIME
6	0217
MONTH	YEAR
Feb	1962

WRITER

SYMBOL: ADLSP-CA

TYPED NAME AND TITLE (Signature, if required): JOHN F. DEAL, MAJOR, USAF

PHONE: 6243 PAGE NR: 1 NR OF PAGES: 2

SECURITY CLASSIFICATION

RELEASER

SIGNATURE

TYPED (or stamped) NAME AND TITLE: JOHN R. MURPHY
Colonel, USAF
Director of Systems
Integration and Programs

27 FEB 1962

DD FORM 1 MAY 55 173 REPLACES DD FORM 173 1 OCT 49, WHICH WILL BE USED UNTIL EXHAUSTED

JOINT MESSAGEFORM - CONTINUATION SHEET | SECURITY CLASSIFICATION

FROM: ADC ENT AFB COLO | SUPPORTING DOCUMENT NO. 4

Subject: (U) Implementation of Phase I, BUIC. Reference: ADC Operational Plan for Back-up Interceptor Control (BUIC) dated 19 January 1962 (Secret). Phase I of the BUIC Plan has been approved. It is anticipated that most of Phase I can be implemented by 1 July 1962 and completely operational by October 1962. To insure meeting these dates each Air Division will take immediate and specific actions with the exception of communications, to implement Phase I of the BUIC Plan. A decision on the type of communications to be used, switching concept as opposed to conventional leased point-to-point communications, is pending. Specific instructions on this phase the Back-up System will be provided by this headquarters. ADLSP-C, this headquarters will be the managing office for this program. With the assistance of each Air Division, (reference ADC letter, Management System for Phase I of the Back-up Interceptor Control System, dated 1 February 1962), implementing schedules for each Phase I Site should be available to the field units by 23 February 1962. (SCP-4)

SYMBOL: ADLSP-CA | NO. 2 | PAGE 2 | SECURITY CLASSIFICATION | INITIALS: JFD

DD FORM MAY 66 173-1

SECRET *(When filled in)*

SUPPORTING DOCUMENT NO. 5

20 Feb 1962

16856

[illegible]

MM R[illegible]AL 159

DE RJEZ[illegible]NJ

[illegible]201545Z

FM [illegible] OTTAWA CANADA

TO RJUFAL/ADC ENT AFB COLO

INFO RJEZKN/ [illegible] AIRDIV STEWART AFB NY

ZEN/USAFCCS-[illegible] OTTAWA CANADA

BT

S E C R E T [illegible]QAC-C [illegible]

ACTION ADLSP, INFO: ADOAC-C, ADO[illegible]-CE [illegible] COMMANDER CCS-C AND [illegible]OAC. SUBJECT: (U) OPERATIONAL PLAN [illegible] CONTROL (BUIC), [illegible]9 JAN [illegible]. SUBJECT PLAN INCLUDES CANADIAN [illegible] [illegible]THOUGH THIS HEADQUARTERS UNDERSTANDS RCAF [illegible] [illegible]RINCIPAL. TO PRECLUDE AIR DIVS FROM INITIATING ACTION [illegible] CANADIAN SITES (REFERENCE [illegible], ANNEX B OF [illegible] ALL AIR DIVS BE ADVISED THAT UNTIL THE RCAF FORMALLY [illegible] A PROGRAM FOR BUIC SUPPORT THIS PLAN ESSENTIALLY [illegible] FURTHER, AS DISCUSSED WITH ADC REPRESENTATIVES AT [illegible]

PAGE TWO RJEZ[illegible]NJ [illegible]

THE AIR DIVS SHOULD ALSO BE ADVISED THAT IN CANADA THERE WILL PROBABLY BE NO CHANGES IN COMMUNICATIONS OR IN THE [illegible] DURING PHASE I. SCP-4.

BT

2[illegible]35[illegible]Z FEB RJEZ[illegible]NJ

6 APR 1962

ADMIN (ADC) FORM 66A, FEB 61

SECRET *(When filled in)*

JOINT MESSAGEFORM

SECURITY CLASSIFICATION

Evie

SPACE BELOW RESERVED FOR COMMUNICATION CENTER

SUPPORTING DOCUMENT NO. 6

PRECEDENCE	TYPE A/RC (Circle)			ACCOUNTING SYMBOL	ORIG. OR REFERS TO	CLASSIFICATION OF REFERENCE
	BOOK	MISSI	SINGLE			
ACTION ROUTINE			X	AF	26 LPR 0559 (29 Mar 62)	UNCLASS
INFO						

FROM:

ADC ENT AFB COLO

TO

26AIRDIV HANCOCK FLD NY

SPECIAL INSTRUCTIONS

SECRET
ADLSP
582
(28 Feb 62)

SECRET ADLSP

For 26 Air Div, 26LPR. Reference 26 Air Division unclas message 26LPR 0559 dated 29 March 1962; ADC Secret message ADLSP 582 dated 28 Feb 62. Subject: (U) Use of Canadian LRR's in Phase I DUIC. The degree of Canadian participation in Phase I of DUIC is being studied. Appropriate divisions will be advised of Canadian participation as soon as possible. (SCP-4)

DATE	TIME
9	1717
MONTH	YEAR
Apr	1962

WRITER

SYMBOL: ADLSP-CA

SIGNATURE

TYPED NAME AND TITLE (Signature, if required)

WILLIAM R. MALONEY, LT COL, USAF

TYPED (or Stamped) NAME AND TITLE

PHONE 6243 PAGE NO. 1

SECURITY CLASSIFICATION

DD FORM 1 MAY 55 173 REPLACES DD FORM 173, 1 OCT 48, WHICH WILL BE USED UNTIL EXHAUSTED

SUPPORTING DOCUMENT NO. 7

7 May 1962

JOINT MESSAGEFORM

SECURITY CLASSIFICATION: CONFIDENTIAL

SPACE BELOW RESERVED FOR COMMUNICATION CENTER

SUPPORTING DOCUMENT NO. 8

PRECEDENCE		TYPE MSG (Check)			ACCOUNTING SYMBOL	ORIG OR REFERS TO	CLASSIFICATION OF REFERENCE
		BOOK	MULTI	SINGLE			
ACTION	ROUTINE		X		AF	CES 98 (6 Jul 62)	CONF
INFO	ROUTINE						

FROM:
ADC ENT AFB COLO

TO: 25AIRDIV MCCHORD AFB WASH
26AIRDIV HANCOCK FLD NY
29AIRDIV RICHARDS-GEBAUR AFB MO
36AIRDIV TRUAX FLD WISC

INFO: 28AIRDIV HAMILTON AFB CALIF
32AIRDIV OKLAHOMA CITY AFB OKLA
CANAIRDEF ST HUBERT CANADA
NEM ST HUBERT CANADA

SPECIAL INSTRUCTIONS
30 CSP-PR
07-04-11
(11 Jul 62)
UNCLAS

CONFIDENTIAL NOFORN EXCEPT CANADA ADLSP [illegible]
FOR RCAF. CANUSECURITY APPLIES. Subject: (U) Group IV Site Participation in BUIC, Phase I. The following information from CANAIRDEF message CES 98, dated 6 July 1962, is quoted for your information and planning purposes. This message in two parts. PART I. QUOTE: Extent of RCAF participation in BUIC Phase I is still under study at RCAF Air Force Headquarters/government

DATE: 17 | TIME: 2245
MONTH: JUL | YEAR: 1962

WRITER
SYMBOL: ADLSP-CA
TYPED NAME AND TITLE (Signature, if required): JOHN F. DEAL, MAJOR, USAF
PHONE: 6243 | PAGE NR: 1 | NR OF PAGES: 2
SECURITY CLASSIFICATION: CONFIDENTIAL

RELEASER
SIGNATURE
TYPED (or stamped) NAME AND TITLE
JAMES [illegible] SMITH
Colonel, USAF
Director of Operations
20 JUL 1962

DD FORM 1 MAY 58 173 REPLACES DD FORM 173, 1 OCT 49, WHICH WILL BE USED UNTIL EXHAUSTED

JOINT MESSAGEFORM - CONTINUATION SHEET | SECURITY CLASSIFICATION

FROM: ADC ENT AFB COLO | SUPPORTING DOCUMENT NO. 8

level and a decision on this matter is not expected until August. Request appropriate agencies be advised that RCAF units are unable to action directives or assume responsibilities concerning the NUTC Plan until government authority to proceed, is obtained. PART II. For 30 Air Div. This answers your letter, same subject, dated 22 Jun 62 and your unclassified message 30-OPP-PR 07-04-11 dated 11 Jul 62. (SCP-4)

MROL				INITIALS
ADLSP-CA	2	2		JFD

DD FORM 1 MAY 55 173-1

☆ U. S. GOVERNMENT PRINTING OFFICE: 1956-450804

JOINT MESSAGEFORM

SECURITY CLASSIFICATION

SPACE BELOW RESERVED FOR COMMUNICATION CENTER

SUPPORTING DOCUMENT NO. 9

	PRECEDENCE	TYPE	ACCOUNTING HEAD	ORIG. OR REFER TO	CLASSIFICATION OF REFERENCE
ACTION	ROUTINE				
INFO		X	AF	X	

FROM:

ADC ENT AFB COLO

TO:

ADC COMD CON DEF SYS CFC LG ILMSCOM FLD MASS

SPECIAL INSTRUCTIONS

SECRET ADLSP

Action AD4OP, Lt Col J. Wilson. Subject: (U) Phase I BUIC IOCs. The following information is furnished at the request of Mr. Bob Morton. Initial Operational Capability (ICC) for Phase I BUIC by Divisions is as follows: 25 Air Division - 15 September 1962; 26 Air Division - 28 September 1962; 28 Air Division 9 October 1962; 29 Air Division 28 August 1962; 32 Air Division - Operational, exceptions P-52 - 13 Oct 1962 and M-95 17 November 1962; 30 Air Division 20 Oct 1962. (SCP-4)

DATE 19 | TIME 1440

MONTH APR | YEAR 1962

WRITE

SYMBOL: ADLSP-CA

SIGNATURE

TYPED NAME AND TITLE (Signature, if required): JOHN F. DEAL, MAJ, USAF

TYPED (or stamped) NAME AND TITLE

PHONE 6243

SECURITY CLASSIFICATION

20 APR 1962

DD FORM 1 MAY 55 173

REPLACES DD FORM 173, 1 OCT 49, WHICH WILL BE USED UNTIL EXHAUSTED

JOINT MESSAGEFORM

SECURITY CLASSIFICATION: CONFIDENTIAL

SPACE BELOW RESERVED FOR COMMUNICATION CENTER

SUPPORTING DOCUMENT NO. 10

PRECEDENCE		TYPE MSG (Check)			ACCOUNTING SYMBOL	ORIG OR REFERS TO	CLASSIFICATION OF REFERENCE
		BOOK	MULTI	SINGLE			
ACTION	ROUTINE			X	AF	ADLSP-354 (6 Feb 62) &	SECRET
INFO							

FROM: ADC ENT AFB COLO

TO: 25AIRDIV MCCHORD AFB WASH
26AIRDIV HANCOCK FLD NY
28AIRDIV HAMILTON AFB CALIF
29AIRDIV RICHARDS-GEBAUR AFB MO
30AIRDIV TRUAX FLD WISC
32AIRDIV OKLAHOMA CITY AFS OKLA

SPECIAL INSTRUCTIONS: ADOAC-CE 9433 (8 Mar 62) UNCLAS

1312

CONFIDENTIAL ADOAC-CE

For OAC. Implementation of Phase I of BUIC (U). References: (a) ADC Operation Plan for BUIC, 19 January 62, SECRET. (b) SECRET message, this headquarters ADLSP-354 6 Feb 62, subject as above. (c) Unclas message, this headquarters ADOAC-CE 9433, 8 Mar 62, subject as above. The development of automatic switching networks for the ultimate circuitry arrangement for Phase II BUIC is progressing satisfactorily. However, an interim switching system for Phase I has been proposed by AT&T

DATE: 11 | TIME: 1400Z
MONTH: May | YEAR: 1962

WRITER
SYMBOL: ADOAC-CE
TYPED NAME AND TITLE (Signature if required): CAPTAIN CLAUDE H. [illegible]
PHONE: 6523 | PAGE NR: 2 | NR OF PAGES:
SECURITY CLASSIFICATION: CONFIDENTIAL

SIGNATURE
TYPED (or stamped) NAME AND TITLE: [illegible] STANLEY
[illegible] Comm Sys Div
15 MAY 1962

DD FORM 1 MAY 55 173 REPLACES DD FORM 173 1 OCT 49, WHICH WILL BE USED UNTIL EXHAUSTED

JOINT MESSAGEFORM - CONTINUATION SHEET

SECURITY CLASSIFICATION

FROM: ADC ENT AFB COLO

SUPPORTING DOCUMENT NO. 10

based on a study conducted in the Washington Air Defense Sector. This proposal has been approved and will be implemented in WAADS in the near future. At present AT&T is preparing cost proposals for the remaining sectors and upon receipt of these figures, the interim switching system will be implemented in every sector where feasible. This action will have no affect on circuitry ordered in accordance with reference c above as all circuits ordered on a point-to-point basis will be integrated into the interim switching system. SCP-4.

SYMBOL	PAGE NO.	NO. OF PAGES	SECURITY CLASSIFICATION	INITIALS
ADOAC-CE	2	2	CONFIDENTIAL	CHS/jr

DD FORM 1 MAY 55 173-1

☆ U. S. GOVERNMENT PRINTING OFFICE: 1955—852250

- - - JOINT MESSAGEFORM

SECURITY CLASSIFICATION: CONFIDENTIAL

SPACE BELOW RESERVED FOR COMMUNICATION CENTER

SUPPORTING DOCUMENT NO //

PRECEDENCE	TYPE MSG (Check)	ACCOUNTING SYMBOL	ORIG. OR REFERS TO	CLASSIFICATION OF REFERENCE
ACTION ROUTINE	BOOK / MULTI / SINGLE			
INFO ROUTINE		AB	X	

FROM:
ADC ENT AFB COLO

TO:
25AIRDIV MC CHORD AFB WASH
26AIRDIV HANCOCK FLD NY
28AIRDIV HAMILTON AFB CALIF
29AIRDIV RICHARDS-GEBAUR AFB MO
30AIRDIV TRUAX FLD WISC
32AIRDIV OKLAHOMA CITY AFS OKLA
64AIRDIV STEWART AFB NY

NFO: ADC COMD CON DEF SYS OFC LG HANSCOM FLD MASS

SPECIAL INSTRUCTIONS
Copy to:
ADOAC-CE

CONFIDENTIAL ADLSP 1953

Subject: (U) Phase I BUIC Plan. TEM 1034 ordered a point to point network supporting Phase I BUIC to be implemented 1 October 1962. TEM 1095 described a voice switching network to support Phase I BUIC and SAGE. The telephone industry proposed to this headquarters that the switched network could be implemented in some Sectors to meet the 1 October 1962 date and that all Sectors could

DATE: 24 | TIME: 1440
MONTH: JUL | YEAR: 1962

WRITER
SYMBOL: ADLSP-CC
TYPED NAME AND TITLE (Signature, if required): ROBERT D. BASKERVILLE, LT COL, USAF
PHONE: 6225 | PAGE NR: 1 | NR OF PAGES:
SECURITY CLASSIFICATION: CONFIDENTIAL

RELEASER
SIGNATURE
TYPED (or stamped) NAME AND TITLE
JAMES O. BECKWITH
Colonel, USAF
Director of Systems
Integration and Programs
27 JUL 1962

DD FORM 1 MAY 55 173 REPLACES DD FORM 173 1 OCT 49, WHICH WILL BE USED UNTIL EXHAUSTED

JOINT MESSAGEFORM - CONTINUATION SHEET

SECURITY CLASSIFICATION: CONFIDENTIAL

FROM: ADC ENT AFB COLO

SUPPORTING DOCUMENT NO. //

be completed with a 30 to 45 day slippage beyond the 1 October 1962 date. A decision was made by this headquarters to withdraw TEM 1084 and to implement TEM 1095 provided this could be accomplished no later than 15 November 1962 for all Sectors except Reno, Seattle and Spokane. (SCP-4)

SYMBOL: ADLSP-CC | PAGE NO. 2 | NO. OF PAGES 2 | SECURITY CLASSIFICATION: CONFIDENTIAL | INITIALS: RDB

DD FORM 1 MAY 55 173-1

☆ U. S. GOVERNMENT PRINTING OFFICE: 1960—[illegible]

JOINT MESSAGEFORM

SECURITY CLASSIFICATION

SPACE BELOW RESERVED FOR COMMUNICATION CENTER

SUPPORTING DOCUMENT NO. 12

	PRECEDENCE	TYPE (CHECK ONE)			ACCOUNTING SYMBOL	ORIG. OR REFERS TO	CLASSIFICATION OF REFERENCE
		EMER	ROUT	CIRCT			
ACTION	ROUTINE					COR240	
INFO	ROUTINE		X		AF	(27 Jul 62)	UNCLAS

FROM:
ADC ENT AFB COLO

TO:
CANAIRMED OTTAWA CANADA

INFO ESD L G HANSCOM FLD MASS

SPECIAL INSTRUCTIONS

SECRET NOFORN EXCEPT CANADA AMEMB 3373

For RCAF CANUSECURITY applies. For COR, CANAIRMED.
Info: ESD. Subject: (U) DUIC Operational Dates.
Reference is made to your unclassified message COR 240 dated 27 July 1962. The full operational capability dates, by Division for Phase I DUIC is as follows: 25th Air Div, 24 March 1963; 26th Air Div, 15 December 1962; 28th Air Div, 15 February 1963; 29th Air Div, 7 January 1963; 30th Air Div, 26 March 1963 and the 32nd Air Div is at present operational but not in the Phase I configuration in its entirety. Phase II is scheduled to become fully operational in December of 1965. (SCP-4)

DATE	TIME
3	2300
MONTH	YEAR
AUG	1962

SYMBOL
ADLSD-CA

SIGNATURE

WRITE

TYPED NAME AND TITLE (Signature, if required)
JOHN F. DEAL, MAJ, USAF

SIGNED (for classified) NAME AND TITLE

PHONE
6243

SECURITY CLASSIFICATION

6 AUG 1962

Integration and Programs

DD FORM 1 MAY 58 173 REPLACES DD FORM 173, 1 OCT 48, WHICH WILL BE USED UNTIL EXHAUSTED

LSP-5453

SUPPORTING DOCUMENT NO. 13

IS IN ADC

HISTORICAL ARCHIVES

JOINT MESSAGEFORM

SECURITY CLASSIFICATION

SPACE BELOW RESERVED FOR COMMUNICATION CENTER

SUPPORTING DOCUMENT NO. 14

PRECEDENCE		TYPE MSG (Check)			ACCOUNTING SYMBOL	ORIG. OR REFERS TO	CLASSIFICATION OF REFERENCE
		BOOK	MULTI	SINGLE			
ACTION	ROUTINE					NOOP-E X-027 19 Jan 62	SECRET
INFO	ROUTINE						

FROM:

ADC ENT AFB COLO

TO:

ESD LG HANSCOM FLD MASS

INFO: ADC COMD CONTROL DEF SYS OFC LG HANSCOM FLD MASS

COFS USAF

CANAIRMED OTTAWA CANADA

RADC GRIFFISS AFB NY

ROAMA GRIFFISS AFB NY

AFSC ANDREWS AFB MD

SPECIAL INSTRUCTIONS

SECRET NOFORN EXCEPT CANADA FROM ADLSP 248

For RCAF CANUSECURITY applies. For ESD. Info: CCDSO; USAF, AFOOP-DE; CANAIRMED; RADC; ROAMA; AFSC. Subject: (U) Review of BUIC Functional Design and Performance Requirements Document. Reference: ESD Secret letter subject as above dated 21 December 1961 and NORAD Secret message NOOP-E X-027 dated 19 January 1962. ADC changes to subject document were submitted verbally at

DATE	TIME
29	1645
MONTH	YEAR
Jan	1962

WRITER

SYMBOL: ADLSP-CT

SIGNATURE

TYPED NAME AND TITLE (Signature, if required): WILLIAM R. MALONEY, LT COL

PHONE: 6243

PAGE NR: 1

SECURITY CLASSIFICATION

RELEASER

TYPED (or stamped) NAME AND TITLE: JOHN R. MURPHY, Brig Gen, USAF, Director of Operations, Intelligence and Evaluation

RELEASED BY

DD FORM 1 MAY 58 173

REPLACES DD FORM 173, 1 OCT. 49, WHICH WILL BE USED UNTIL EXHAUSTED

JOINT-MESSAGEFORM - CONTINUATION SHEET | SECURITY CLASSIFICATION

FROM: ENT AFB COLO | SUPPORTING DOCUMENT NO. 14

CCDSO. This message is to restate requirement that this document should not be restrictive so as to limit a bidder with equipment of greater capacity from submitting a bid. An example of this is noted on page 2-3 paragraph 2.1.2.1. "Data Processing" paragraph 2 which states, "It shall have the capacity to process periodically up to 40 aircraft tracks and conduct up to 10 simultaneous intercepts within a 15 second period". Statements such as this should read "At least 40 tracks and conduct at least 10 simultaneous intercepts in approximately 15 seconds". NORAD message noted in reference indicates changes in fighter profile and EARC altitude. This Headquarters is in agreement that the fighter profiles should be taken from ADCM 55-5. The altitude changes as recommended by NORAD for EOMARC profile II and III should be left at 60,000 feet to conform with MITRE TM-40 #223 dated 17 October 1961 which has received ADC approval. The primary concern of this office is that the design specifications will be too restrictive and possibly eliminate a contractor that may have "off the shelf" equipment that would be capable of doing the job. It is realized that ESD is responsible for system design but a great deal of time and effort has been expended by several contractors in this field in an attempt to approach this problem utilizing different concepts. A

ADLSP-CA | 2 | 3 | INITIALS: WPM

DD FORM MAY 65 173-1

☆ U. S. GOVERNMENT PRINTING OFFICE: 1965—

JOINT MESSAGEFORM - CONTINUATION SHEET

SECURITY CLASSIFICATION

FROM:

)C ENT AFB COLO

SUPPORTING DOCUMENT NO. 14

design specification that is too restrictive could possibly eliminate contractors that have equipment and capability to perform the job. These contractors should not be prevented from participation in the competition. (SCP-4)

SPECIAL HANDLING REQUIRED
NOT RELEASABLE TO FOREIGN NATIONALS
EXCEPT TO CANADA

The information contained in this document will not be disclosed to foreign nationals or their representatives.

ABOL	PAGE NO.	NO. OF PAGES	SECURITY CLASSIFICATION	INITIALS
ADLSP-CA	3	3		WRM

DD FORM 1 MAY 65 173-1

☆ U. S. GOVERNMENT PRINTING OFFICE: 1966—

SUPPORTING DOCUMENT NO. 15

MMNCZCALH336ZCJWD697
RR RJWFAL RJWFALB
DE RJE2HQ 1206
ZUR
R 2421442
FM HQUSAF WASHDC
TO RFEPFZ/HQ RCAF OTTAWA ONTARIO CANADA
INFO RFEUC/CANADIAN JOINT STAFF 2451 MASS AVE WASH 25 DC
RJWFAL/HQ ADC ENT AFB COLO
RJEZFF/AFSC ANDREWS AFB MD
RJEZBF/ESD LG HANSCOM FLD BEDFORD MASS
RJEZBF/COMDR DET 4 4608 SPT SQ ADC HANSCOM FLD MASS
RJWFALB/NORAD ENT AFB COLO
BT
UNCLAS FROM AFOOP 31634
REFERENCE: A. USAF DC OPERATIONAL PLAN FOR BACKUP INTERCEPTOR CONTROL, DATED 19 JAN 62; B. NORAD MSG NOOP-EX-206, DATED 27 APR 62. THIS MSG IN TWO PARTS. PART I (BACKGROUND). THIS HQ ON 16 APR 62 APPROVED IN PRINCIPLE ADC'S OPERATIONAL PLAN FOR BUIC. CONTRACT AWARD FOR THE FIRST 17 COMPUTERS IS SCHEDULED FOR 1 JULY OR SHORTLY THEREAFTER. ADC AND NORAD HAVE DETERMINED THE DESIRABILITY OF LOCATING 4 OF THE 34 NORAD ALTERNATE CONTROL CENTERS IN CANADA OF WHICH C-6 AND C-5 WOULD BE WITHIN THE FIRST 17 TO BECOME OPERATIONAL. A TEAM FROM YOUR HEADQUARTERS LED BY AIR COMMODORE AUSTIN WAS BRIEFED ON

PART II. NOW THAT THE PROPOSED SYSTEM IS REACHING THE IMPLEMENTATION STAGE AND COST FIGURES ARE BECOMING AVAILABLE, IT IS CONSIDERED TIMELY TO FORMALLY INVITE YOUR PARTICIPATION INTO THE PROGRAM. IF YOU AGREE IN PRINCIPLE WITH THE BUIC CONCEPT, IT IS SUGGESTED THAT AN RCAF HQ - USAF HQ MEETING BE HELD IN WASHINGTON FOR ONE DAY DURING THE WEEK OF 18 JUNE TO INFORMALLY DISCUSS THE FOLLOWING: (A) THE BUIC DEPLOYMENT USING AS A BASIS REFERENCE A ABOVE; (B) IMPLEMENTATION PRIORITIES AS CONTAINED IN REFERENCE B ABOVE; (C) A SERVICE TO SERVICE APPROACH TO PROCESS THE REQUIREMENT WITHIN THE CADIN STRUCTURE AND AGREEMENT. IT IS SUGGESTED THAT THE MEETING BE CO-CHAIRED BY THE TWO HEADQUARTERS. COL F. K. NICHOLS WILL ACT AS THE USAF CHAIRMAN.
BT
24/2142Z MAY RJE2HQ

- JOINT MESSAGEFORM

SECURITY CLASSIFICATION

SPACE BELOW RESERVED FOR COMMUNICATION CENTER

SUPPORTING DOCUMENT NO. 16a

PRECEDENCE		TYPE MSG (Check)			ACCOUNTING SYMBOL	ORIG. OR REFERS TO	CLASSIFICATION OF REFERENCE
		BOOK	MULTI	SINGLE			
ACTION	ROUTINE						
INFO	ROUTINE		X		AF	ADLSP 52 (9 Jan 62)	CONF

FROM: ADC ENT AFB COLO

SPECIAL INSTRUCTIONS

TO: ADC COND CONTROL DET SVS OPC LG MANSCOM FLD MASS

INFO: CCFS USAF

RADC GRIFFISS AFB N Y

ROAMA GRIFFISS AFB N Y

AFSC ANDREWS AFB MD

GEEIA GRIFFISS AFB N Y

CANAIRMED OTTAWA CANADA

SECRET NO FORN EXCEPT CANADA FROM ADLSP 1A9
FOR RCAF CANSECURITY AIRLIES
For CCDSO. Info: USAF, AFOOP-DE; RADC; ROAMA; AFSC; GEEIA; CANAIRMED. Subject: (U) Back-up Interceptor Control Schedule. Reference: a. ESD Proposed Back-up Interceptor Control Schedule dated 15 December 1961, and b. ADC confidential message ADLSP 52 dated 9 January 1962. This message in five parts. Part I. Reference a. above, subject document is approved with the exception of the following listed comments. Part II. In

DATE	TIME
23	2100
MONTH	YEAR
Jan	1962

WRITER

SYMBOL: ADLSP-CA

SIGNATURE

TYPED NAME AND TITLE (Signature, if required)
WILLIAM R. MALONEY, LT COL, USAF

PHONE: 6243 PAGE NR 1 NR OF PAGES

SECURITY CLASSIFICATION

TYPED (or stamped) NAME AND TITLE
JOHN H. MURPHY
Colonel, USAF
Director of Systems
Information and Programs

27 FEB 1962

DD FORM 1 MAY 55 173 REPLACES DD FORM 173, 1 OCT 49, WHICH WILL BE USED UNTIL EXHAUSTED

JOINT MESSAGEFORM - CONTINUATION SHEET | SECURITY CLASSIFICATION

FROM: ADC ENT AFB COLO | SUPPORTING DOCUMENT NO. 16a

accordance with reference b. it is agreed that the first four computers should be installed as follows: Number 1 to be Category I test bed and left intact at the contractor plant to be re-installed in an operational site at a later date. Number 2 computer to be installed at P-10 to expedite fixes and reduce overall cost of test effort. Number 3 should be installed at TM-198 to facilitate BOMARC testing. Number 4 should be installed at P-50 to facilitate cross tell testing of computers. Part III. The following is the ADC/NORAD desired operational priorities listing for computerized NCCs: 1. P-54, 2. P-56, 3. P-49, 4. P-50, 5. C-8, 6. P-16, P-69, 8. C-5, 9. P-61, 10. P-53, 11. P-45, 12. M-115, 13. P-30, 14. P-10, 15. M-119, 16. SM-112, 17. P-35, 18. P-73, 19. P-37, 20. P-44, 21. P-59, 22. P-40, 23. M-100, 24. M-96, 25. P-57, 26. P-76, 27. M-98, 28. P-25, 29. P-29, 30. P-72, 31. P-27, 32. C-17, 33. TM-198, 34. M-114. The reasons for the change from the proposed schedule is that it is operationally desirable to have a full capability in the priority one area prior to equiping the lower priority areas with computerized capability. Part IV. The Proposal "B" consisting of 9 test teams should be utilized as the most economical. Part V. Installed dates of AN/FYQ-27 radars, page 14, rules for AN/FYQ-27, page 15 should be amended

ACTION FOUND | SECURITY CLASSIFICATION | INITIALS

ADLSP-CA | 2 | 3 | WPM

DD FORM 1 MAY 65 173-1

JOINT MESSAGEFORM - CONTINUATION SHEET

SECURITY CLASSIFICATION

FROM:

ᵓC ENT AFB COLO

SUPPORTING DOCUMENT NO. 16a

to read - 5 sets recommended for deletion - reference Headquarters ADC Secret message ADLSP 52 dated 9 January 1962. Page 17, Miscellaneous Radar Recapitulation sheet and page 18, Ground rules for ARSR-1 and AN/FPS-20 should also be changed to reflect deletion of 5 rather than 11 FPS-27 radars. (SCP-4)

VOL	PAGE NR	OF PAGES	SECURITY CLASSIFICATION	INITIALS
ADLSP-CA	3	3		WRM

DD FORM MAY 55 173-1

☆ U. S. GOVERNMENT PRINTING OFFICE: 1955—[illegible]

JOINT MESSAGEFORM

SECURITY CLASSIFICATION

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1 May 62 23 35z

SUPPORTING DOCUMENT NO. 16 B

	PRECEDENCE	TYPE MSG (Check) BOOK	MULTI	SINGLE	ACCOUNTING SYMBOL	ORIG. OR REFERS TO	CLASSIFICATION OF REFERENCE
ACTION	ROUTINE					AFOOP-DE-WC 74329	
INFO	ROUTINE		1		AD	(29 Mar CO)	SECRET

FROM: ADC ENT AFB COLO

SPECIAL INSTRUCTIONS

TO: CSAF

INFO NORAD (MESSENGER)

ADC COMD CON DEF SYS OFC LG HANSCOM FLD MASS

ESD LG HANSCOM FLD MASS

SECRET NOFORN EXCEPT CANADA DELSP 1 95

Action AFOOP-DE-WC. Info: NORAD, NOOP-E; CCDSO, AD4OP; [illegible]D, ESSGE. Reference Part II HQ USAF Secret message AFOOP-DE-WC 74329 dated 29 March 1962. Subject: (U) Location of the First 17 NACC's. The following is the 17 NACC operational priority for deployment agreed to by this Headquarters and NORAD. The first three would be utilized as follows: 1. Remain at plant as test facility. 2. P-50 for use as Category II testing. 3. TM-198 for Category III tests and operator training. The operational priority for the 17 NACC's is as follows: 1. P-54. 2. P-56. 3. P-49. 4. P-50 5. P-16

DATE	TIME
1	2130
MONTH	YEAR
MAY	1962

WRITER

SYMBOL: ADLSP-CA

SIGNATURE

TYPED NAME AND TITLE (Signature, if required): WILLIAM R. MALONEY, LT COL, USAF

TYPED (or stamped) NAME AND TITLE

PHONE: 6243

PAGE NR 1 NR OF PAGES 1

SECURITY CLASSIFICATION

1 MAY 1962

DD FORM 1 MAY 55 173 REPLACES DD FORM 173, 1 OCT. 49, WHICH WILL BE USED UNTIL EXHAUSTED

LSP 52221

JOINT MESSAGEFORM - CONTINUATION SHEET | SECURITY CLASSIFICATION

FROM: ADC ENT AFB COLO | SUPPORTING DOCUMENT NO. 163

6. P-69 7. P-61 8. C-8 9. C-5 10. P-45 11. P-30 12. P-10. 13. M-119 14. SM-132 15. P-65 16. P-73. 17. M-98. (SCP-4)

	PAGE NO.	NO. OF PAGES	SECURITY CLASSIFICATION	INITIALS
ADLSP-CA	2	2		

DD FORM MAY 65 173-1

☆ U. S. GOVERNMENT PRINTING OFFICE: 1969—[illegible]

JOINT MESSAGEFORM

SECURITY CLASSIFICATION

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SUPPORTING DOCUMENT NO. 17

PRECEDENCE	TYPE			ACCOUNTING	ORIG. OR REFERS TO	CLASSIFICATION OF REFERENCE
	BOOK	MULTI	PRIORITY			
ACTION ROUTINE			X	AF	X	
INFO						

FROM:

ADC

TO

COFS USAF

SPECIAL INSTRUCTIONS

SECRET ADIRP-R

FOR AFOCE-ES. Reference telephone conversation Lt Col Bohannon and Capt Lingel this headquarters, 22 Jan 62. This message in three parts. Part I. (Unclas) Protection factor for aboveground shielding at ACW stations in FY 62 MCP should be two hundred (200). USAF Operational Analysis Paper No. 2, Classified Secret, Subject: Vulnerability of Proposed SAGE Backup System to ICBM Attack in 1965 Period (U), November 1961, does not consider all possible attacks. Assumptions in Analysis Paper No. 2 concerning radiation levels, may not be valid if heavier attack considered. Construction costs using protection factor of 200 are not expected to exceed 10 per cent of construction costs using protection factor of 100. For above reasons, recommend

DATE	TIME
30	2140
MONTH	YEAR
Jan	62

WRITER

SYMBOL

ADIRP-R

TYPED NAME AND TITLE

CAPT W.F.FLAHERTY/ks/29 Jan 62

PHONE

2616

SECURITY CLASSIFICATION

SIGNATURE

NAME AND TITLE

DD FORM 1 MAY 55 173

REPLACES DD FORM 173, 1 OCT 49, WHICH WILL BE USED UNTIL EXHAUSTED

JOINT MESSAGEFORM - COMMUNICATION SERVICE

FROM: ADC

SUPPORTING DOCUMENT NO. 17

protection factor of 200 to be used as the standard for above ground shielding, ACW FY 63 MCP. Part II. (Secret) Request that provisions for future installation of CBR filters be included in design of fallout shelters FY 62 MCP, ADC. This request is based on secret JCS message to CINCONAD 1703, 6 Oct 61, approving Army development of automatic system to detect, identify and report enemy employment of toxic chemical and biological agents. Construction costs to provide for future CBR filter installation considered negligible added cost. Part III. (Unclas) Request that functional basements in FY 63 MCP that are designed for protection factor of 200 and cost less than 15 per cent more than cost of basic facility be approved for construction. This request is based on study of 63 MCP PCM's presently available to this hq. A study of eight facilities using a protection factor of 100 reveals that the average cost is approximately 3.7 per cent higher than the basic facility and by using a protection factor of 200 the average cost is 12.3 per cent higher than the basic facility. SCP 4

SYMBOL: ADIRP-R

INITIALS: wff

DD FORM 1 MAY 62 173-1

CONFIDENTIAL *(When filled in)*

SUPPORTING DOCUMENT NO. 18

7 Oct 1962

CONFIDENTIAL *(When filled in)*

ADMIN (ADC) FORM 67A, FEB 61

SECRET

SECTION 12 - REQUIREMENTS

SUPPORTING DOCUMENT NO. 1

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON 25, D. C.

AFORQ

SOR NR. 79
DATE: 24 Feb. 55
REVISED: 16 Apr. 62

(U) SPECIFIC OPERATIONAL REQUIREMENT
FOR A
CONTINENTAL AIR DEFENSE CONTROL AND WARNING SYSTEM

This SOR supersedes GOR Nr 79 (AD-3a), dated 24 February 1955, and Amendment 79-1, dated 30 July 1956, for "(U) A Continental Air Defense Control and Warning System."

PURPOSE. This specific operational requirement is in support of that portion of the North American Air Defense Objectives Plan 1964-1973 (Short Title: NADOP 64-73) which established a requirement for increasing the survivability of the present Continental Aircraft Control and Warning System and increasing the detection capability to include sea surface and/or submarine launched missiles.

1. OPERATIONAL MISSION. CINCNORAD/CINCONAD has been assigned the mission of protecting the war-making capability of the North American Continent which includes Alaska, Canada and Greenland from air attack to the degree necessary to assure the successful conclusion of a general war. The mission of the Continental Aircraft Control and Warning System is to provide CINCNORAD/CINCONAD with the necessary warning, identification, control and communications facilities to exploit air defense weapons to their maximum capability. This mission establishes the specific requirement for a system that:

a. Provides early warning of an attack by piloted aircraft, air-breathing missiles and sea surface and/or submarine launched ballistic or cruise missiles. SLBM detection range to 1000 NM is required.

b. Detects, tracks and identifies enemy aircraft and missiles as indicated in 1a above which pose a threat, actual or potential, to the North American continent.

c. Employs defensive weapons to their maximum capability.

2. ENEMY EFFECTIVENESS ESTIMATES. Estimates of enemy capabilities are contained in the latest Hqs USAF SOR Intelligence Annex (U).

3x8

SECRET

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SUPPORTING DOCUMENT NO 19

3. PRESENT SYSTEMS.

a. General. The present Continental Air Defense Control and Warning System consists of two early warning radar detection lines in the North, a ground environment consisting of assorted radars, communications, and semi-automatic data processing equipment which covers the Southern part of Canada and the Continental United States, with the exception of an area in South-Central U.S.; Northeastern part of Canada and Greenland where manual processes will continue to be used for the conduct of air defense operations. In addition, the Alaskan Air Command operates warning and control radars which are programmed to be equipped with semi-automatic data-gathering and display systems by December 1963.

(1) Early Warning. Two radar detection lines guard against piloted aircraft approaching the NORAD defended areas from the North. The most northerly is the Distant Early Warning (DEW) line extending from the Aleutian Islands across Northern Canada to the East Coast of Greenland, with airborne extensions from Greenland to the U. K. in the Pacific Ocean. South of the DEW line is the mid-Canada line extending East and West along a line approximately 55°N. The RCAF-operated mid-Canada line coverage extends the NORAD surveillance system and verifies penetrations first detected by the DEW line, or provides initial early warning of enemy forces previously undetected.

(2) Ground Environment - North American Continent. This ground environment except as in 3, 2, uses general-purpose digital computers to accept and store information, and to calculate and present solutions to air defense problems. The computer through electronic consoles presents instantaneously selected portions or a composite picture of the location, speed, and direction of airborne objects, indicates a possible choice of weapons that could be used in countering an attack, solves necessary attack geometry, and routes guidance commands through ground-to-air links to defense weapons. The ground environment within the North American continent is composed of the following subsystems:

(a) Surveillance. Surveillance data is provided from early warning lines, long-range search radars, gap filler radars, height finder radars, AEW&C aircraft, Texas Towers, and from picket vessels.

(b) Command and Control. The command and control functions are performed by designated commanders who direct courses of action based upon situation summaries and weapon capabilities. Electronic equipments correlate inputs and outputs, present data required for command decisions, and integrate man/machine actions in air defense operations. Command and control functions are directed from Direction Centers and Combat Centers.

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(c) Communications. Commercial and government-owned communication facilities are used for point-to-point communications throughout the system. Critical communications links are duplexed and use separate routes to avoid likely target areas wherever possible. Air-ground-air communications between the ground environment and the defense weapons are carried out through ground/air transmitter-receiver equipment deployed to provide the most effective communications coverage.

4. LIMITATIONS OF PRESENT SYSTEMS. The outstanding deficiencies of the present control and warning system are:

a. General.

(1) Altitude deficiencies in the radar coverage available to counter the threat posed by high performance enemy weapons.

(2) Inadequacies in radar coverage and weapons control capability off the East and West coasts which preclude the employment of long-range defensive weapons to their full potential.

(3) Vulnerability to interference by certain types of electronic countermeasures.

(4) Low survivability potential of communications and direction centers.

b. Specific.

(1) Radar Coverage off the East and West Coasts. Air defense weapons are deployed along the East and West Coasts to defend these areas from attack by enemy aircraft and air-breathing missiles. Radar coverage in support of these weapons is required from the surface to approximately 100,000 feet in altitude and 500 miles in range, from the coast line. The present AEW&C extensions are limited in the distance from which they can be positioned in relation to shore-based or Texas Tower radar installations. The capability of the airborne platform does not, therefore, provide the required surveillance necessary to support off-shore weapons employment. In addition, no radar coverage exists for the detection of submarine launched ballistic missiles.

(2) Electronic Countermeasures. The control and warning system is vulnerable to interference by many types of electronic countermeasures (ECM). The electronic counter-countermeasure (ECCM) equipment now in use is not adequate to combat the more advanced ECM equipment and techniques.

(3) Vulnerability of Direction Centers. Because of their essential functions in the conduct of air defense operations, the SAGE direction centers are likely to be priority

350

targets for neutralization at the outbreak of war. Located above ground in concrete buildings, they have a low survivability potential against nuclear weapons. The loss of direction centers would seriously degrade the air defense capability of the control and warning system. A backup interceptor control system capable of assuming direction center functions under emergency conditions is required.

5. OPERATIONAL PERFORMANCE REQUIREMENTS.

a. Radar Improvements.

(1) Radars (Search and Height Finding, Long Range). The following are specific operational performance requirements of the search and height-finding radars:

(a) Detection of a one square meter target at a minimum of 220 nautical miles with a blip-scan ratio of 80%.

(b) Detection and tracking of targets up to 100,000 feet.

(c) Position error at 220 nautical miles should not exceed ½ degree in azimuth and 2 miles in range. The height accuracy required is plus or minus 500 feet.

(d) Capability of detecting and tracking moving targets through clutter.

(e) The capability to minimize the effect of electronic countermeasures.

(2) Radars (Gap Filler - Low Altitude). The following are specific operational performance requirements of the gap filler radars:

(a) Detection of a B-47 type target at a minimum of 45 nautical miles with a blip-scan ratio of 75%.

(b) Detection and tracking of targets from the surface to 17,000 feet.

(c) Positional error not exceeding plus or minus ½ nautical mile at maximum range.

(d) Capability of clutter cancellation.

(e) A high capability to resist electronic counter-measures.

(f) Unattended operation.

COPY

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b. Airborne Long Range Inputs. The following are specific operational performance requirements for radar, data processing, and communications equipment to be carried in airborne platforms:

(1) Radars (Search). Detection of 1 square meter target to a minimum of 150 nautical miles with a blip-scan ratio of 80%.

(2) Radars (Height Finder). Range detection capability as above at heights up to 80,000 feet.

(3) Data Processing Equipment. Automaticity in the equipment required to process radar including beacon data in a form suitable for automatic insertion into the system.

(4) Communications. Equipment capable of transmitting automatically, in digital form, the data obtained by the radars mounted in the airborne platforms. The performance characteristics of this equipment must permit the airborne platform to be positioned so as to extend the medium and low altitude radar coverage to about 500 miles off the coasts.

c. Backup Interceptor Control System (BUIC). The threat delineated in the USAF SOR Intelligence Annex makes it probable that neither Mode I nor Mode II SAGE control will exist in some sectors following the initial ICBM strike. The Mode III concept of operation provides for centralized control of defense forces within each sector in the event of loss of Mode I and Mode II control, through the implementation of a netted semi-automatic backup system. The commander charged with the operational control of this backup system within a sector is located at NORAD Control Center (NCC) and is responsible for conducting the air battle with the surviving defense facilities in the event SAGE control is absent. The core or the netted backup system will be the Backup Interceptor Control (BUIC) facility. This facility will be located with an NCC at a long range radar site and will be responsible for processing that information which provides the NCC Commander with a timely picture of the air defense situation. The BUIC facility shall be comprised of a control central consisting of a solid state data processor with associated information storage equipments, display and maintenance consoles, automatic digital data input-output equipment and other equipments such as tape drives and other on-line communication equipments; an operational computer program; a manual display and the personnel necessary for operational manning and maintenance.

(1) General System Description. The BUIC System shall provide area control to the NCC Commander through automatic data processing and data presentation to enable him to meet the requirements of supervising the air battle in the post-ICBM

attack environment. The BUIC facility shall implement centralized control by utilizing surveillance inputs from five long range radar sites with their associated multiplexed gap filler radars, status reports from available weapon bases, and information from surviving adjacent and higher commands. Voice and data-link communications will be utilized in the control of manned interceptors and surface-to-air missiles.

(2) BUIC Environment. The BUIC System boundaries for operational control will be configured to permit easy assumption of the air defense function when SAGE Direction Center control is lost in a sector. Its surveillance inputs will be from those radar sites which will provide coverage in its area of responsibility. Its weapons will consist of manned interceptors located at home and dispersed bases, BOMARC A and B missiles, and NIKE fire units. Netting and deployment will be for optimal survivability (i.e., facilities deployed at sites least vulnerable to "bonus" destruction) with redundancy of BUIC sites, communications facilities, and weapons availability as necessary within each sector.

(3) Data Processing. The quantity of input information and the speed with which complex evaluations must be performed requires an automatic data processing capability. The solid state BUIC computer shall be able to perform high speed calculations and be capable of accepting, processing, and transmitting information from sources internal and external to the site.* It shall have the capability to process periodically (approximately a 15 second period) a minimum of 40 aircraft tracks to include the conduct of 10 simultaneous intercepts. It shall be capable of recording internal data for evaluation purposes, and generating data for system exercise purposes.

* System capacity is not to be construed as system capability. Site configuration, i.e., the number of operating consoles that determines the track carrying and intercept control capability within the equipment capacity will be determined on a site by site basis.

The computer program shall be modular in its sub-units to facilitate changes and debugging activities. Facilities shall be provided at each site to permit installation of adaption and program changes. In addition, a method shall be available for restoring the program in case of program destruct or start-up.

(4) Data Presentation. Data generated by the computer for presentation shall provide sufficient communication between men and machines to facilitate the command decisions made by the human operators. These facilities shall provide for organization, on a real time basis, of critical information in an intelligible and systematic manner that will permit comprehensive monitoring and control functions. Multi-purpose

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display consoles shall be employed to provide for maximum versatility in operator utilization. Displays shall appear on console scopes to pictorially present the air situation to the facility operators. These shall include tracks and associated track data, weapons locations, and predicted intercept points. The operators shall have the capability to insert action requests and commands into the computer and select appropriate displays (e.g. geographical features, weapons bases). In addition, selected status summary type of information shall be automatically generated and displayed.

(5) Communication. The communication subsystem of the BUIC facility shall consist of those input-output equipments necessary for communicating with ancillary facilities which provide tactical information. The computer input-output equipment shall have the capability of automatically receiving and transmitting digital data link information. In addition, the facility shall be capable of receiving and transmitting teletype and voice information.

(6) Operational Concepts. The operational concept is dependent upon the BUIC facility deployment and is presented here to indicate the necessary functional and operational requirements placed upon the data processing, data presentation and communication subsystems of the BUIC facility. A detailed operational plan will define the concepts and interfaces outlined below.

(7) Air Surveillance. This function shall provide for the gathering of surveillance data and the processing of the data into identified track information. The surveillance data shall be provided through the netting of the BUIC facility with long range radar (LRR) surveillance sites, airborne long range radar (ALRR) aircraft, picket ships (PS) and airborne early warning and control (AEW&C) aircraft presently existing in SAGE.

(8) Radar Inputs. The facility shall be capable of receiving data automatically from five (5) LRR surveillance sites and ALRR aircraft. The data shall contain multiplexed gap filler, selective identification feature (SIF), strobe, search and height radar data as processed by an AN/FST-2 Coordinate Data Transmitter. The facility shall have the capability of automatically generating height requests on system tracks in accordance with a priority scheme. A manual intervention action shall provide a capability of requesting height on a specific track.

(9) Tracking. The facility shall utilize the radar inputs to form [illegible] tracks. Initiation shall be performed automatically for gap filler tracks while weapons tracks may be initiated automatically or manually. Once the track is initiated, correlation, smoothing, and prediction shall be accomplished automatically with trouble detection displays provided to indicate a need for manual intervention.

(10) Manual Track Data Inputs. Track data inputs received at the BUIC facility from AEW&C aircraft, picket ships and non-digitally netted surveillance sites shall be manually inserted into the BUIC computer. Updating information for these tracks shall be received from the originating source and manually inserted.

(11) Identification. This function shall provide for the identification of tracks established by the tracking function. The BUIC facility will execute this function based upon established procedures and displayed information. Identification operators will be responsible for identifying all tracks initiated in the performance of the surveillance function. Weapon tracks shall be automatically identified by the computer or may be manually identified by the weapons controllers. The system shall have a capability of assisting in the safe passage of friendly forces during the performance of emergency war missions.

(12) Weapons Employment and Control. This function shall provide for the employment of weapons (manned interceptor and BOMARC) against target tracks, and the necessary weapons control. In addition, this function shall provide for the assignment of target tracks to NIKE defenses and have a capability of handing over weapons between adjacent backup equipment groups.

(13) System Training. The BUIC facility shall have a capability of performing system exercises for initial checkout, confidence tests and training, using live or simulated intercepts against live or simulated targets.

d. Electronic Counter-Countermeasures. A passive detection sub-system will be developed as part of the semi-automatic backup control system, with the following general characteristics:

(1) Capability to initiate and maintain tracking on a minimum of 10 jamming aircraft utilizing passive data alone.

(2) Data quality must be adequate to permit effective accomplishment of command and control functions.

(3) Enable the backup system to effectively perform required tracking functions utilizing mixed active and passive data in varying proportions on an integrated basis.

6. GENERAL COORDINATION

a. Considerable effort will be given to maintaining technical and operational compatibility of the system with the NORAD COC System [illegible] with systems of other services.

SUPPORTING DOCUMENT NO. 19

b. During the development and implementation of the Backup Interceptor Control System and Passive Detection Subsystem, maximum consideration must be given the following:

(1) Reliability - A prime requisite of these systems is that they can be effectively used and maintained by military personnel. Design emphasis must be directed toward the attainment of utmost simplicity and reliability in all phases. A probability of 0.75 that the BUIC facility will be fully operational for the mission time of 72 hours following an alert shall be required. This corresponds to a mean time between failures of 250 hours. System down time shall not exceed a total of 36 minutes during a 72 hour mission with a probability of 0.98. General reliability requirements will be in accordance with:

MIL-E-
MIL-D-
MIL-E-
MIL-M-

Reliability of the components of the system will be monitored by the provisions of AFR 375-5.

(2) Maintainability - The system is to be maintained by organic military personnel as it becomes operational. The standard Air Force policy of three levels of maintenance: organizational, field and depot, will be employed for support of the BUIC and Passive Detection Subsystem. Adherence to the policy of "base self-sufficiency", maximum maintenance maintenance at the lowest level is required. The accomplishment of depot level maintenance will be the responsibility of the Air Force Logistics Command. When AFLC organic capability is not practical, depot level maintenance will be accomplished by contract using contractor facilities.

(a) Maintenance will be accomplished in accordance with policies set forth in AFR's 66-1, 66-31 and AFM 66-1.

(b) MIL-M-26512B and an appropriate test and demonstration supplement will be applied to these systems in accordance with AFR 66-29.

7. AVAILABILITY: The expansion and qualitative improvements specified in this SOR are required to be fully implemented by the end of 1965.

WILLIAM W. MOMYER
Major General, USAF
Director of Operational Requirements
DCS/Operations

JOINT MESSAGEFORM

SECURITY CLASSIFICATION

SPACE FILL-IN RESERVED FOR COMMUNICATION CENTER

SUPPORTING DOCUMENT NO. 20

	PRECEDENCE	TYPE (X one) BOOK	MULTI	SINGLE	ACCOUNTING SYMBOL	ORIG. OR REFERS TO	CLASSIFICATION OF REFERENCE
ACTION	ROUTINE					AFOCE-PD 81256 (21 Apr 62)	
INFO	ROUTINE		X		AF		CONF

FROM: ADC ENT AFB COLO

SPECIAL INSTRUCTIONS

TO: CSAF

INFO GEEIA CRIFFISS AFB NY

AFSC ANDREWS AFB MD

ESD LG HANSCOM FLD MASS

ADC COMD CON DEF SYS OPC LG HANSCOM FLD MASS

NORAD (MESSENGER)

Copies to

ADOAC-CE
ADIRP-R

CONFIDENTIAL NOFORN EXCEPT CANADA ADLSP

Action AFOCE-PD. Info: AFCOP-DE-WC, USAF; ESD, ESSGE; CCDSO, AD4OP; NORAD, NEEC-E. Reference HQ USAF Confidential message AFOCE-PD 81256 dated 21 April 1962. Subject: (U) Re-evaluation of GATR and TX Shielding in BUIC Plan. The GATR and TX shielding as proposed in the BUIC Plan has been thoroughly studied by operational analysis personnel of both ADC and NORAD. Their conclusion is that all GATR and TX buildings must have an area shielded in order for the system to function and

DATE	TIME
27	1910
MONTH	YEAR
APR	1962

WRITE SYMBOL: ADLSP-CA

TYPED NAME AND TITLE (Signature, if required): LEWIS G. MC ISAAC, LT COL

PHONE: 6243

SECURITY CLASSIFICATION

RELEASER'S NAME AND TITLE

1962

DD FORM 1 MAY 58 173 REPLACES DD FORM 173, 1 OCT 49, WHICH WILL BE USED UNTIL EXHAUSTED

JOINT MESSAGEFORM - CONTINUATION SHEET | SECURITY CLASSIFICATION

FROM: 'DC ENT AFB COLO | SUPPORTING DOCUMENT NO. 20

survive. The effectiveness of the BUIC System to conduct air defense in the post attack phase during fallout periods is totally dependent on the control link between the ground environment and the airborne weapons. Since the CATR facilities are remotely keyed from the BUIC or SAGE control facilities, their operational survivability is required even if the parent radar is lost due to fallout activity. Our previous message on this subject stated that only a minimum number of personnel would be used to man the CATR or TX building during emergencies. The remaining air-ground personnel available would be housed in the ..00 man shelter. Specific answers to your questions are as follows: It is absolutely necessary to have maintenance personnel at the ground-air facilities at all times. They are required to take action instantly whenever a transmitter or receiver malfunctions to insure effectiveness of weapons control. The term maintenance is not fully descriptive of the function to be accomplished. The function actually is a combination of operations and maintenance at these air ground facilities. The time to travel to the CATR buildings has been calculated to be too great to escape hazardous exposure. Also, personnel must be attendant to the

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JOINT MESSAGEFORM - CONTINUATION SHEET

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FROM:

: ENT AFB COLO

SUPPORTING DOCUMENT NO. 20

equipment and not traveling between the fallout shelter and GATR site. This Headquarters, by separate correspondence, is requesting authority to move the receiver equipment at all split sites into the transmitter building. This will provide the equivalent equipment layout as in the standard GATR buildings. In view of the above, request HQ USAF take necessary action to authorize design and construction of the shielding for the GATR and TX buildings. This is necessary in order to provide this command with a survivable operating system. (SCP-4)

TO

ADLSP-CA

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DD FORM MAY 65 173-1

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SUPPORTING DOCUMENT NO. 21

M-8950-11

13 JUL 62 07 53

12 July 1962

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ADMIN (ADC) FORM 66A, APR 62

M-8950-11

30 August 1962

SUPPORTING DOCUMENT NO. 22

ADMIN (ADC) FORM 66A, APR 62

SUPPORTING DOCUMENT NO. 22

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ADMIN (ADC) FORM 66A, APR 62

JOINT MESSAGEFORM

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SUPPORTING DOCUMENT NO. 23

PRECEDENCE	TYPE MSG (Check)			ACCOUNTING SYMBOL	ORIG. OR REFERS TO	CLASSIFICATION OF REFERENCE
	BOOK	MULTI	SINGLE			
ACTION PRIORITY				AF	ADC-SY-28-559-	
INFO					20 Aug 62	SECRET

FROM:
ADC ENT AFB COLO

TO:
ADC COMPUTER PROGRAMMING & SYS
TNG OFC SANTA MONICA CALIF

SPECIAL INSTRUCTIONS

SECRET ADLSP 3213

Immediate action required regardless of time received. Reference Telephone Conversation 21 Aug 62 between Col Dow and Lt Col Baskerville. The following message, Secret ADC CCDSO ADA-SY-28-559-M, dtd 20 Aug 62, from Lt Col Lakey is quoted for your information. Quote. For ADLSP-C. Subject is (U) ESD/MITRE BUIC Study. This Msg in 9 parts. Part I. Information that follows was obtained by inter-action with study group and should be considered as preliminary and is forwarded for your use as desired. Part II. Feasibility of Van Mounting BUIC. Basic Central Computer System is off-the-shelf equipment and is designed to be van transportable. By current Burroughs design plans, Drum System, Display System,

DATE	TIME
21	2100Z
MONTH	YEAR
Aug	1962

WRITER

SYMBOL
ADLSP-C

TYPED NAME AND TITLE (Signature, if required)
HUGH D. DOW, Colonel

PHONE 6225

PAGE NO. 1 NR OF

SECURITY CLASSIFICATION

SIGNATURE

TYPED (or stamped) NAME AND TITLE

DD FORM 1 MAY 55 173 REPLACES DD FORM 173, 1 OCT 49, WHICH WILL BE USED UNTIL EXHAUSTED

LSP-5480

JOINT MESSAGEFORM - CONTINUATION SHEET

FROM: ADC ENT AFB COLO

SUPPORTING DOCUMENT NO. 23

Communications Buffers, and associated equipment will not be van transportable. All can be designed to be transportable, however, added capital costs should be anticipated. No detailed values or added costs are available, however, 30 to 40% extra has been mentioned. Slippage, if any, would depend on how soon contract could be modified. Part III. Optimum System netting. It is not anticipated that optimum netting for this system will be determined due to time factor. It has been noted, however, that some selected NCC locations do not readily lend themselves to the scheme of three locations with 25 mile separation; for example, communication lines from P-10 (North Truro) go through Cape Cod Bottleneck and by Micro-wave to the Boston area. All pass through or near Boston. Thus it becomes impossible to meet 25 mile criteria due to geography. Part IV. GATR modifications, no technical problems visualized in modification of GATR sites for two-way data link with IMI. Costs will depend to some degree on equipment required to convert air/ground message received to land line transmission. Part V. Feasibility of using remote GATR for data link to IMI. Most feasible scheme appears to be the one where the GATR at selected GATR sites within the sector are devoted to IMI control and are a

TO: ADLSP-C

INITIALS: UDD

DD FORM 1 MAY 50 173-1

JOINT MESSAGEFORM - CONTINUATION SHEET | SECURITY CLASSIFICATION

FROM: ADC ENT AFB COLO | SUPPORTING DOCUMENT NO. # 23

common frequency. Other half would be available for close control by parent NCC. CATR splitting technique is defined in current BUIC program. In these cases where IMI is in an adjacent sector, handover of control is deemed most feasible. Part VI. Feasibility of providing communication tie-ins for remote BUIC locations. In those cases where town or city with telephone central are chosen as sites, no great expense is visualized. For remote locations: i.e., along phone lines or at bases of micro-wave towers, TELCO will no doubt have to build small buildings to house equipment, this adding to cost. How many such facilities will be required will depend on configuration and locations. It does not appear to be as simple a problem as initially visualized. VII. Emergency Power. At this time, it appears cheaper to pre-locate power at each site. Part VIII. ALRI. MITRE is unable to give any assurance that airborne long range radar (400NM) is within state of the art during time period. APQ-81 System has some promise of shorter range over land capability, but it is estimated that $16 million will be required for development alone. Part IX. Summary. With exception of ALRI, no requirements beyond state of the art have been found. The presentation of the results of the ESD/MITRE study is scheduled for Wednesday 22 Aug 62.

SYMBOL: ADLSP-C | PAGE 3 | 4 | SECURITY CLASSIFICATION | INITIALS: HDD

DD FORM 173-1

JOINT MESSAGEFORM - CONTINUATION SHEET

SECURITY CLASSIFICATION

FROM:

ADC ENT AFB COLO

SUPPORTING DOCUMENT NO. 23

This presentation will elaborate on the information shown above and will include a more thorough discussion of the cost implications. It should be emphasized that this message contains advanced information and that the information has not as yet been presented to ESD.

Unquote. (SCP-4)

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ADLSP-C	4	4		HDD

DD FORM MAY 50 173-1

☆ U. S. GOVERNMENT PRINTING OFFICE 1950

JOINT MESSAGEFORM

SECURITY CLASSIFICATION

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SUPPORTING DOCUMENT NO. 21

PRECEDENCE	TYPE MSG (Check)			ACCOUNTING SYMBOL	ORIG. OR REFERS TO	CLASSIFICATION OF REFERENCE
	BOOK	MULTI	SINGLE			
ACTION ROUTINE					DORQ-T 211411 (7 Aug 62)	CONF
INFO ROUTINE						

FROM:

ADC ENT AFB COLO

TO:

TAC LANGLEY AFB VA

INFO ASD WPAFB OHIO

ADC AERONAUTICAL SYS OFC WPAFB OHIO

ESD L G HANSCOM FLD MASS

ADC COMD CON DEF SYS OFC L G HANSCOM FLD MASS

CSAF

SPECIAL INSTRUCTIONS

SECRET ADLSP 2309

Action DORQ, TAC. Info: ASZD, ADD; AFODQ, AFOCP, USAF; AD4SO, CCDSO; and ANDSO. Subject: (U) Tactical Airborne Warning and Control (TAWC) System. Reference: TAC Confidential message DORQ-T 211411 dated 7 Aug 62. ADC is presently developing a proposed reconfiguration of the Air Defense System for 1967 plus. There is a requirement for an airborne system capable of performing the functions of a BUIC site. Specific details as to complete requirements for the airborne system are not

DATE 29 TIME 2202

MONTH AUG YEAR 1962

WRITER

SYMBOL ADLSP-CA

SIGNATURE

TYPED NAME AND TITLE (Signature, if required)

WILLIAM L. RAY, MAJ, USAF

TYPED (or stamped) NAME AND TITLE

PHONE 6243

SECURITY CLASSIFICATION

30 AUG 1962

DD FORM 1 MAY 48 173

REPLACES DD FORM 173, 1 OCT 48, WHICH WILL BE USED UNTIL EXHAUSTED

LSP-5730

JOINT MESSAGEFORM - CONTINUATION SHEET

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FROM:
ADC ENT AFB COLO

SUPPORTING DOCUMENT NO. 24

presently developed to the extent that a realistic QOR can be published. However, it is anticipated that ADC will be in a position to furnish a QOR on the airborne system for the consideration of TAC and ASD by the later part of September 1962. ADC welcomes the opportunity to work with TAC on the development of a QOR for a mutually acceptable system to fulfill operational requirements for an airborne detection and control environment. ADC contact for this system will be ADLSP-CA, telephone extension [redacted]. Please advise ADC of the date and time of the proposed meeting. (SCP-4)

SYMBOL: ADLSP-CA | PAGE NO. 2 | OF PAGES 2 | SECURITY CLASSIFICATION | INITIALS: WLR

30 AUG 1962

DD FORM 1 MAY 55 173-1

☆ U. S. GOVERNMENT PRINTING OFFICE: 1955—682286

SECRET

19 Oct 62

HEADQUARTERS
AIR DEFENSE COMMAND
UNITED STATES AIR FORCE
ENT AIR FORCE BASE, COLORADO

SHIELD OF FREEDOM

SUPPORTING DOCUMENT NO 25

SUBJECT: (U) Qualitative Operational Requirement for an Airborne Surveillance and Control System (QOR ASACS)

TO: USAF (AFORQ)

1. The attached Qualitative Operational Requirement, submitted in accordance with AFR 57-3 dated 15 May 1956, provides ADC requirements for an Airborne Surveillance and Control System. This QOR defines the operational concept and performance parameters for an airborne system to be effective against the aerodynamic and offshore medium range ballistic missile threat expected in the post-1965 era. This system will enhance the survivability of the ADC surveillance, communication relay and weapons control functions. It is conceived to be compatible with current and programmed ADC weapon and supporting systems.

2. In recognition of the urgent requirement for an improved early replacement for the current airborne warning and control system, and also of the requirement to cope with more sophisticated threats, the performance characteristics have been divided into two phases. Phase I performance capabilities are required in operational units by 1966. Phase II performance requirements are required in operational units by 1970.

3. It is appreciated that design and production of a system to meet the Phase II requirements will require solution of difficult technical problems. Over the past few years, scientific advances have been demonstrated by energetic USAF development programs. It is reasonable to assume that this expanding state-of-the-art can meet the Phase II requirements expressed in this QOR by 1970, if such a program is given adequate support.

4. Recommend this QOR be validated by publication of an SOR and that adequate priority be assigned development of this system to insure its availability by the required dates.

5. CINCNORAD has been furnished a copy of this QOR and his comments have been requested. You will be advised of CINCNORAD's comments as soon as practicable after their receipt.

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NOT RELEASABLE TO FOREIGN NATIONALS

The information contained in this document will not be disclosed to foreign nationals or their representatives.

/s/ Robert M. Lee

ROBERT M LEE
Lieutenant General USAF
Commander

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QOR ASACS, 1 cy
(S/NOFORN Exc Can)
Cy #37

DOWNGRADED AT ... INTERVALS;
DECLASSIFIED ...

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SUPPORTING DOCUMENT NO. 2

QUALITATIVE OPERATIONAL REQUIREMENT

FOR AN

AIRBORNE SURVEILLANCE AND CONTROL SYSTEM

Short Title: ASACS

(Titles Unclassified)

19 October 1962

Headquarters
Air Defense Command
Ent Air Force Base, Colorado

Copy No. 71 of 110 copies.

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DECLASSIFIED AFTER 12 YEARS.
DOD DIR 5200.10
Group 4

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SECRET

QUALITATIVE OPERATIONAL REQUIREMENT
FOR AN
AIRBORNE SURVEILLANCE AND CONTROL SYSTEM
(ASACS) SUPPORTING DOCUMENT NO. 25

1. INTRODUCTION: This Qualitative Operational Requirement is submitted in accordance with AFR 57-3 dated 15 May 1956. It states a requirement for an airborne vehicle equipped with long range sensors, communication relay equipment, and computers and display equipment. This system will be capable of extending sensor coverage around the perimeter of the CONUS for detection and early warning against the aerodynamic and the air or submarine launched ballistic missile threat. The system will also be capable of operating over land areas and may have application for overseas use.

2. PURPOSE: This requirement is in support of the Air Defense Command Aerospace Objectives 1966-1976 (ADCAO 66-76) and the North American Air Defense Command Objectives Plan 1963-1973 (NADOP 63-73), which establish the need for survivable surveillance and command control systems.

3. OPERATIONAL MISSION: The operational mission of this system is to:

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DOWNGRADED AT 3 YEAR INTERVALS;
DECLASSIFIED AFTER 12 YEARS
DOD DIR 5200.10
Group 4

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SUPPORTING DOCUMENT NO. 25

a. Provide an extension of the contiguous CONUS surveillance coverage against the aerodynamic and air or submarine launched ballistic missile (ALBM and SLBM) threat.

b. Provide an auxiliary to, and replacement for, any ground based surveillance or control facilities within the continental limits that may become non-operational for an appreciable period for any reason, including direct enemy action.

c. Provide communications relays for renetting the remaining air defense weapons and command and control structure following an attack on this country.

d. Provide increased surveillance sensor performance with an automatized airborne control capability to exploit the full potential of current and future high performance interceptors.

4. ENEMY EFFECTIVENESS ESTIMATES:

a. Estimates of enemy effectiveness capabilities are contained in USAF and NORAD Intelligence for Planning documents.

b. The USSR has demonstrated a capability to produce and operate high altitude long range bombers armed with long range air-to-surface and ballistic missiles. The

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Soviets have also demonstrated a capability to produce and operate submarines armed with short and medium range ballistic missiles. Soviet operational capability with these systems is expected to be achieved prior to 1965.

c. The USSR has the technical capability for development of intercontinental cruise missiles (ICCM) and supersonic low altitude missiles (SLAM). These weapons could be available prior to 1966.

5. LIMITATIONS OF PRESENT SYSTEM:

a. The survivability of current surveillance, communications and control facilities is limited when evaluated against the most probable threats. Against certain possible, and logical, threats and enemy tactics, the survivability referenced is very marginal.

b. The present AEW&C and ALRI fleet was developed to provide a seaward extension of the SAGE environment and is incapable of operating over land masses.

c. The RC-121D's provide only manual surveillance and control of manned interceptors with no capability for control of BOMARC.

d. The present RC/EC 121 fleet is limited in platform altitude, detection and tracking range, data processing and communications capabilities and is inadequate to cope with its mission requirements and the anticipated threat.

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6. FRIENDLY ENVIRONMENT:

a. The ASACS will normally operate from military bases within the CONUS, but operation from bases outside the CONUS may be required. Prime air bases with hard surface runways suitable for operation of high speed jet aircraft will be available for these aircraft. Dispersal bases, adequate for interim operations, will be utilized to materially reduce the vulnerability of this system to enemy attack.

b. The ASACS will operate in the ground environment existing during its operational period, and will be compatible with the NORAD communications network.

c. ASACS communications will be expected to be compatible with all normally deployed DOD communications facilities such as command posts, direction centers, and reconstitution points.

d. Effective operation of the ASACS in its mission roles will require the friendly environment to include secure IFF equipments.

e. Maintenance facilities and logistic support will be provided to support 150 flying hours per aircraft per month.

7. OPERATIONAL EMPLOYMENT:

a. These aircraft will be deployed off the coasts of the United States and over the land areas of the CONUS and

SUPPORTING DOCUMENT NO. 25

Canada in such patterns that the sensor coverage will provide for detection and tracking of the expected threat. Only a limited number of aircraft will be on peacetime patrol, manning assigned stations on a random basis. For survivability of the fleet, a combination of random manning of assigned stations, alert at-home base, and constant dispersal will be utilized. Sufficient aircraft will be maintained on alert capable of being launched within a reasonable amount of tactical warning (5 - 15 minutes) to man the remaining assigned stations. The remaining mission-ready aircraft will be dispersed to noncritical target areas.

b. The aircraft will maintain continuous communications with the primary ground environment system. During the deployment of the aircraft, while under the control of the primary system, the aircraft will function as an extended sensor system, feeding target track and interceptor track information into the ground environment system. Also, the aircraft will function as a communications relay between the interceptors and the direction centers.

c. As elements of the ground environment system are rendered inoperable, the ASACS will assume the responsibility of scrambling of interceptors, weapon assignment

SUPPORTING DOCUMENT NO 35

and interceptor vectoring within its assigned area. To accomplish this control function, the aircraft will receive tracking information from surviving surveillance sites, other airborne systems, and the self-contained surveillance system.

8. DESIRED CAPABILITIES:

In recognition of the urgent requirement for an improved early replacement for the current AEW&C and ALRI system, performance characteristics are divided into two phases. Phase I performance capabilities are the minimum acceptable and are required in operational quantities by end 1966. Phase II performance requirements to cope with the advanced estimated threat are required in operational quantities by 1970.

a. Phase I Performance Requirements.

(1) Aircraft Performance With Equipment On Board.

(a) Cruise altitude - not less than 35,000 feet.

(b) Cruise speed - high subsonic at cruising altitude.

(c) Mission time - at least 12 hours endurance on station 1000 nautical miles from home base.

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(d) Scramble capability - aircraft must be airborne in 15 minutes from ground alert condition with all essential equipments operating. With an alert crew on board, the aircraft must be capable of being airborne in 5 minutes.

(2) Detection and Tracking Sensor(s) Performance.

(a) Range - at least 400 nautical miles on 1 square meter targets.

(b) Altitude coverage - surface to 100,000 feet.

(c) Azimuth coverage - 360° around the aircraft.

(d) Azimuth accuracy - ± 0.75°.

(e) Range accuracy - ± 0.25 nautical miles at maximum detection range.

(f) Altitude accuracy - ± 3,000 feet at maximum range.

(g) Target speed - .1 to Mach 3.0.

(h) Tracking mode - simultaneous tracking. Time sharing between targets will be permitted but will not be acceptable as a substitute for simultaneous tracking and surveillance.

(i) Tracking capability - track targets from the surface up to 100,000 feet over any terrain.

'66

(j) Reliability of sensor data over land or water - 90% detection and 95% continuity of track.

(k) ECCM capability against all types of jamming, electronic or mechanical.

(l) Automatized and manual airborne control of weapons.

(m) The detection and tracking sensor must be designed to insure the maximum accomplishment of successful missions. A 90% probability of success for mission accomplishment is desired. In-flight maintenance or redundant circuitry with automatic or semi-automatic switching design techniques is required to extend the useful mission time before abort is necessary.

(3) Infrared and/or Optical Sensor.

(a) Azimuth coverage - 360° around the aircraft.

(b) Detection range - 800 nautical miles against short or medium range ballistic missiles during boost and midcourse phases of the trajectory.

(c) Mode of operation - detect while scan.

(d) Real time information flow to computer.

(4) Navigation. The navigation subsystem will be required to provide a continuous reference to the data processing system and aircraft with an accuracy of ± 1 nautical mile in aircraft position at all times.

SUPPORTING DOCUMENT NO. 25

The subsystem must also have the capability of self-alignment or correction while the aircraft is on the ground or in the air on a mission.

(5) Communication. The communication subsystem must fulfill the following requirements:

(a) Provide a data link between the aircraft on station, ground command and control receiving sites and weapons.

(b) Provide the capability to receive processed and semi-processed data from adjacent aircraft, and ground complexes.

(c) Provide the capability to relay data link transmissions from ground-to-air transmitter (GAT) sites.

(6) Data Processor. A general purpose digital data processor is required with the following capability:

(a) Process and display optical, radar, IR, and SIF tracks.

(b) Process and display all digital data inputs from the communication subsystem.

(c) Calculate guidance commands, assemble messages, and insert into display and communication subsystems.

SUPPORTING DOCUMENT NO. 25

(d) Provide a functional checkout and fault isolation of the following subsystems:

1. Data Processor.

2. Communication.

3. Sensors.

4. Navigation.

5. Display.

(e) Provide capability to assemble, transmit, and receive messages in the standard NATO format.

(6) Provide capability of tracking at least 100 simultaneous targets and computing 25 simultaneous intercept problems.

(7) Display. Automatic 1000 nautical mile map display and status boards are required for presentation of the battle situation and weapon status to a commander aboard the aircraft.

(8) Aerospace Ground Support Equipment. Maintenance ground equipment (MGE) will be kept to an absolute minimum. Self check-out of the system will be a major consideration in the design and programming of the system.

b. Phase II Performance Requirements.

(1) Aircraft Performance. Increased altitude, range, endurance and speed capabilities will be required.

Reference is made to those new aircraft being studied under Planning Study 799013 (Survivable and Effective Air Breathing Defense) and ADO 48 (Supersonic Transport).

(2) Detection and Tracking Sensor Performance. It is recognized that advanced designs of current airborne sensors may not have the growth capability to achieve the desired performance requirements. Therefore investigation of new or different techniques for airborne sensors should be initiated at an early date. Minimum performance capabilities should provide for:

(a) Detection range - 500 nautical miles on .1 square meter target.

(b) Altitude - surface to 150 miles.

(c) Range and altitude accuracy - increases commensurate with the increased detection range and altitude.

(d) Target speed - the estimated threat after 1966, for which these detection and tracking capabilities are required, is considered to include subsonic, supersonic and hypersonic vehicles operating between the surface up to low orbit altitude (approximately 150 nautical miles). Air-to-surface missiles, air-launched ballistic missiles, and surface- or subsurface-launched ballistic missiles and boost glide vehicles with increased ranges and velocities are a vital element of this threat.

SUPPORTING DOCUMENT NO. 25

(3) The advanced threat capabilities dictate the requirements for qualitative and quantitative improvements in the data processing, display and communications areas be commensurate with the desired detection and tracking sensor capabilities.

9. SPECIAL INSTRUCTIONS: It is desired that:

a. The equipments required for this system be designed and packaged in modular form in order to readily integrate new modules as increased capabilities are achieved.

b. All equipments for this system be selected and designed so that they are capable of continued operation in a nuclear environment from maximum range of the sensor, surveillance, control and communications equipments, into the range where aircraft or crew would be incapacitated from a near nuclear burst.

c. All equipments required for this system be compatible with the existing and planned ground environment systems during the life span of this system.

10. AVAILABILITY. The Phase I ASACS is required in operational units by 1966. The Phase II ASACS with the increased performance capabilities is required by 1970. This system is expected to remain in the ADC inventory until 1980.

SUPPORTING DOCUMENT NO. 25

11. RECOMMENDATION: Recommend this QOR be validated by publication of an SOR and that adequate priority be assigned development of the Phase I system to insure its availability by 1966.

- - - o - - -

72

SUPPORTING DOCUMENT NO. 25

INITIAL DISTRIBUTION LIST

Qualitative Operational Requirement
for an
Airborne Surveillance and Control System
(ASACS)

USAF (AFORQ)	10
AFSC	3
TAC	2
SAC	2
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552d AEW&C Wing	1

JOINT MESSAGEFORM

SECURITY CLASSIFICATION

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SUPPORTING DOCUMENT NO. 26

PRECEDENCE	TYPE MSG (Check)			ACCOUNTING SYMBOL	ORIG. OR REFERS TO	CLASSIFICATION OF REFERENCE
	BOOK	MULTI	SINGLE			
ACTION PRIORITY						
INFO						

FROM:
ADC ENT AFB COLO

TO:
ADC COMD CON DEF SYS L G HANSCOM FLD MASS
ADC COMPUTER PROGRAMMING SVC THE CTC SANTA MONICA CALIF

SPECIAL INSTRUCTIONS

SECRET ADLSP 07

Action CCDSO, APASTO. Subject: (U) SAGE Reconfiguration This message confirms telecon Col Dow to Col Cleod (APASTO) and Lt Col Vantrease (CCDSO). A conference will be held on 3-4 Jan 63 at Hq ADC to definitize plans for system reconfiguration to meet DOD directive for phase out of 6 SAGE DCs and 17 LRRs. Plans to be prepared for submission to USAF and must also include specific information on modifications to DUIC required to meet transportability and increased capacity requirements. Request representation from CCDSO, ESD, MITRE, APASTO, SDC. (GP 4)

DATE	TIME
31	2400
MONTH	YEAR
DEC	1962

WRITE

SYMBOL
ADLSP-CA

TYPED NAME AND TITLE (Signature, if required)
JAMES P LAMEY, LT COL, USAF

PHONE
C2A2

PAGE NR.
1

NR OF PAGES

SECURITY CLASSIFICATION

RELEASER

SIGNATURE

TYPED (or stamped) NAME AND TITLE

DD FORM 1 MAY 58 173

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LSP-5706

JOINT MESSAGEFORM

SECURITY CLASSIFICATION

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		BOOK	MULTI	SINGLE			
ACTION	ROUTINE						
INFO	ROUTINE		X		AF		

FROM: ADC ENT AFB COLO

SPECIAL INSTRUCTIONS

TO: CSAF

INFO: AFSC ANDREWS AFB MD

ESD LG HANSCOM FLD MASS

ADC COMD CON DEF SYS ODC LG HANSCOM FLD MASS

12

SECRET ADCCS 12

Action for AFXPD and AFOOP at USAF. Info: AFSC; ESD; CDSO. Reference 29 Dec 62 meeting at this headquarters between Lt General Lee and Lt General Burchinal, subsequent telecon between Generals Lee and Burchinal and Hq USAF msg AFOOP-64559 27 Dec 62. This msg in four parts. PART I. This hq proceeding with detailed plan for modification to existing DUIC Phase II Contract and deletion of 6 SAGE Direction Centers and 17 long range radars. This hq proceeding on the basis of (1) no SAGE Direction Center deletions in the Northern Tier area, (2) minimum modification to the Phase II DUIC Contract to provide trans-

James E. Miller 03/0084

DATE	TIME
3	2121
MONTH	YEAR
JAN	1963

WRITER

SYMBOL: ADLSP-C

SIGNATURE

TYPED NAME AND TITLE (Signature, if required): Colonel Hugh D. Lee

TYPED OR STAMPED NAME AND TITLE

PHONE 6225 PAGE NR. NR. OF PAGES

SECURITY CLASSIFICATION

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CSF-1000

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CLASSIFICATION

FROM:

ADC ENT AFB COLO

SUPPORTING DOCUMENT NO. 27

portability and 100 track capacity, (C) no further deletions in the Air Defense Command and Control System in succeeding fiscal years until joint DOD/FAA studies completed, and common use of system elements determined. PART II. Hq ADC/NORAD determining SAGE System deletions, BUIC System improvements and DEADS Control Center sitings on basis of operational requirement with technical cost and schedule inputs to be received from ESD. PART III. Hq ADC will present the ADC/NORAD plan at a technical meeting to be hosted by ESD the week of 7-11 Jan 63. Technical and other implications which may cause modifications to the ADC/NORAD plan to satisfy other than operational requirements will be included as a result of the 7-11 January meeting at ESD. PART IV. Hq ADC plans to provide detailed plan to Hq USAF on 18 Jan 63. (GP-4)

SYMBOL	PAGE NO.	OF PAGES	SECURITY CLASSIFICATION	INITIALS
ADLSP-C	2	2		

DD. FORM MAY 62 173-1

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JOINT MESSAGEFORM

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		BOOK	MULTI	SINGLE			
ACTION	[illegible]				AF		
INFO	[illegible]						

FROM: ADC INT AFB COLO

TO: CSAF

INFO: ESD L G HANSCOM FLD [illegible]
ADC COMD CTL DIV SYS OFC L G HANSCOM FLD MASS
ROAMA GRIFFISS AFB NY
CHEIA GRIFFISS AFB NY
CINCNORAD (MESSENGER)

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Group 4

SECRET NOFORN EYES ONLY FROM ADC/CC-AN

Action AFCOP-DE-WC. Info ESSC, AFACOP, ROVPA, ROZICG, ROZCM and NEEC. (U) Proposal to Defer Implementation of Selected 416L C&E Facilities. This msg in four parts. Part I. Ref ADC "Preliminary Study for Reconfiguration of the Command and Control System, 416L/M" dated 15 Jan 1963. Referenced document was prepared by direction of your msg, AFCOP-64559, 27 December 1962. The study identifies seventeen (17) radar sites to be considered for deletion from the 416L environment. Some of sites

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The information contained in this document will not be disclosed to any foreign nationals or their representatives without the approval of the originating agency.

DATE: 21 | TIME: 1345Z
MONTH: JAN | YEAR: 1963

WRITER

SYMBOL: ADCAC-AN

SIGNATURE:

TYPED NAME AND TITLE (Signature, if required): LT COL R C [illegible]

TYPED (or stamped) NAME AND TITLE: RAYMOND M. CRAMER, Colonel, USAF, Chief, Program Management Division

PHONE: 2324 | PAGE NO. 1 | NO. OF PAGES

SECURITY CLASSIFICATION: SECRET

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FROM: ADC INT AFD COLO | SUPPORTING DOCUMENT NO. 28

involved are currently programmed to have new C&E facilities installed. Suggest that NEAD consider the desirability of issuing hold-in-abeyance instructions which would defer installation of certain facilities, pending final decisions rendered on the site deletion study. The potential savings in manpower and dollar resources which could be realized are considered obvious. Part II. This Hq, in coordination with NORAD, has identified the following programmed C&E facilities as being appropriate for specific consideration: (A) FPS-20 for P-13, Brunswick, (B) GPA-102 for P-71, Omaha, (C) OA-2325 for P-14, St Albans, (D) AN/FPS-26 and AN/FPS-27 for P-23 Minot, (E) MT-[illegible]s for P-23 and P-13, (F) UPX-14s for P-66, RP-31, P-80, RP-1, P-14, P-71, RP-54, SM-151, SM-147, P-74, P-23 and P-13, and (G) OA-3424 antennae for RP-31, SM-151, P-13, RP-54, P-74, and P-71. Part III. Decision on deferring installation of AN/FPS-27 and AN/FPS-26 at P-23 is most urgent because of early schedule for installation start action. Therefore, request GEEIA be included in your reply. Part IV. If deferral action is effected, appropriate schedule revisions can be accomplished at the forthcoming 12-15 Feb 63, 413L Phasing Coordinating. Gp-4.

MBOL: ADOAC-AN | PAGE No. 2 | NR OF PAGES 2 | SECURITY CLASSIFICATION: SECRET | INITIALS

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ACTION	ROUTINE				AF		
INFO	ROUTINE						

FROM:
ADC ENT AFB COLO

TO:
ESD LG HANSCOM FLD [illegible]
RADC GRIFFISS AFB NY

INFO: ADC COMD CONT DAT [illegible] HANSCOM FLD MASS
ROAMA/GELIA FLD OFC (MESSENGER)

SPECIAL INSTRUCTIONS
DISTRIBUTION:
ADOAC-AN
ADMIN
ADOOP-EI

CONFIDENTIAL ADOAC-ER

Action for ESSGD at ESD; RAL at RADC. (U) Realignment of Priorities. Ref is made to the USAF directive to identify 17 radar sites and six Direction Centers for possible deletion. It is requested that the priority listings for the stations selected for possible deletion be scrutinized and tentative action taken to identify equipment installation including ECP's that should be delayed or deleted. This subject will be brought up at the next 416L Phasing Group Meeting; however, installation schedule for ECP's is not expected to be discussed at this meeting. Your recommendations on realignment of ECP installation

DOWNGRADED AT 3 YEAR INTERVALS; DECLASSIFIED AFTER 12 YEARS DOD DIR 5200.10

DATE	TIME
3	1800Z
MONTH	YEAR
JAN	63

WRITER

SYMBOL: ADOAC-ER

TYPED NAME AND TITLE (Signature, if required): Maj Saurer/kc

PHONE: 6233 | PAGE NR. | NR. OF PAGES

SECURITY CLASSIFICATION: CONFIDENTIAL

SIGNATURE

TYPED (or stamped) NAME AND TITLE

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FROM: ADC ENT AFB COLO | SUPPORTING DOCUMENT NO. 29

schedule are solicited, with final action to be contingent on implementation of the 17 and 3 Program. GP-4.

SYMBOL	PAGE NO.	NO. OF PAGES	SECURITY CLASSIFICATION	INITIALS
ADOAC-ER	2	2	CONFIDENTIAL	

DD FORM 1 MAY 55 173-1

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Also Improved BUIC

BUIC

SUPPORTING DOCUMENT NO. 30

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FM CINC [illegible]

TO [illegible]

INFO [illegible]

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BECAUSE OF [illegible] CAPACITY,

WOULD ALSO [illegible]

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WHICH IS [illegible]

PURELY AS [illegible]

LIGHT OF [illegible] BUIC [illegible]

POSSESSES SEVERAL [illegible]

AND WEAPON [illegible]

PROGRAMMED [illegible]

SECRET

ADMIN (ADC) FORM 66A, MAR 63

ME-1
CAC-1
OSP-1
IT-1
POP-1
MA-1
OC-1
OC-1
US-1
OCS-1

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ADMIN (ADC) FORM 66A, MAR 63

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ADMIN (ADC) FORM 66A, MAR 63

SUPPORTING DOCUMENT NO. 31

SECRET

-13 BUIC

SECRET

ADMIN (ADC) FORM 66A, APR 62

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SUPPORTING DOCUMENT NO. 32

CONFIDENTIAL

ADMIN (ADC) FORM 67A, APR 62

SECURITY CLASSIFICATION

JOINT MESSAGEFORM

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SUPPORTING DOCUMENT NO. 33 BUIC

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	BOOK	MULTI	SINGLE			
ACTION ROUTINE			X	AF		
INFO						

FROM: ADC ENT AFB COLO

SPECIAL INSTRUCTIONS

TO: 4602SPTWG 119 ROSS AVE OTTAWA CANADA

CONFIDENTIAL ADOAC-CC 752

For OAC. (U) P-432 Annual Financial Plan-Budget Estimate. Reference Confidential message 4602 OAC-C 27, dated 28 Feb 63, subject as above. Cost-sharing agreement relative to BUIC has not yet been approved by DOD or USAF. As soon as determination has been made by higher headquarters, 4602nd will be so advised. This message is classified Confidential because it refers to Canadian requirements. Cp 4.

DATE	TIME
12	2332Z
MONTH	YEAR
Mar	63

WRITE

SYMBOL: ADOAC-CC

TYPED NAME AND TITLE (Signature, if required): HELEN ESPANDER, Budget Officer

PHONE: 3452 | PAGE NR. 1 | NR OF PAGES 1

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SIGNATURE

TYPED (or stamped) NAME AND TITLE
ROBERT E. HAIGL
Major, USAF
Actg Ch, Comm Sys Div

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ADMIN (ADC) FORM 67A, APR 62

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PRECEDENCE	TYPE MSG (Check)			ACCOUNTING SYMBOL	ORIG OR REFERS TO	CLASSIFICATION OF REFERENCE
	BOOK	MULTI	SINGLE			
ACTION		X				
INFO						

FROM:
ADC ENT AFB COLO

TO:
25AIRDIV MCCHORD AFB WASH
26AIRDIV HANCOCK FLD NY
29AIRDIV HAMILTON AFB CALIF
29AIRDIV RICHARDS GEBAUR AFB MO
30AIRDIV TRUAX FLD WISC
32AIRDIV OKLAHOMA CITY AFS OKLA
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SECRET ADLSP 491

Action 25 Air Div, 26 Air Div, 29 Air Div, 29 Air Div, 30 Air Div, 32 Air Div; AD4SY-Z, CCDSO. Subject: (U) Operational Priority Listing for Phase II DUIC NCC's. The existing Operational Priority Listing for Phase II DUIC (Mode III) NCCs has been reviewed by NORAD in view of the fact that, during installation of the AN/GSA-51 computer system in accordance with current priorities, it would negate the operational capabilities of the Phase I

DATE 14 | TIME 2085Z
MONTH DEC | YEAR 1963

WRITER

SYMBOL ADLSP-CA

TYPED NAME AND TITLE (Signature, if required)
JOHN F. DEAL, MAJOR, USAF

PHONE 6242 | PAGE NR. 1 | NR. OF PAGES 4

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SIGNATURE

TYPED (or stamped) NAME AND TITLE
GALEN D. PRICE
Colonel, USAF
Dep Dir of Systems
Integration and Programs

DD FORM 1 MAY 55 173

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FROM: C ENT AFB COLO | SUPPORTING DOCUMENT NO. 35

Mode III NCCs. Other criteria such as priority of area defended, vulnerability of DCs, DCS/NCC Control capability, first 8 sets being installed by contractor in the US, were also considered. No changes have been made in NCC station locations, only in priority in which NCCs will become operational. The revised NCC list of operational priorities is as follows:

OPLN PRIORITY	NCC	SECTOR	APPROX GCI/NCC(I) PHASE DOWN DATE	OPLN DATE	PRODUCTION SET NO.
1	P-45	NY	Sept 63	15 Oct 64	3
2	M-115	Wash	Jan 64	15 Dec 64	5
3	P-30	Syr	Mar 64	15 Jan 65	6
4	P-10	Des	Aug 63	15 Feb 65	2
5	SM-132	Dul	May 64	15 Mar 65	7
6	P-65	Dang	June 64	31 Mar 65	8
7	P-73	Det	June 64	31 Mar 65	9
8	C-119	SSM	June 64	31 Mar 65	10
9	C-17	SFMS	Aug 64	30 Apr 65	11
10	M-93	SF	Aug 64	30 Apr 65	12
11	P-57	SEA	Sept 64	31 May 65	13
12	P-76	LA	Sept 64	31 May 65	14
13	TM-130	Port	Sept 64	31 May 65	15
14	P-40	SPO	Oct 64	30 June 65	16
15	P-27	Min	Oct 64	30 June 65	17
16	P-25	Gt Fls	Oct 64	30 June 65	18

SYMBOL | PAGE NR 8 | NR OF PAGES 4 | SECURITY CLASSIFICATION | INITIALS

DD FORM 1 MAY 55 173-1

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SUPPORTING DOCUMENT NO. 35

ADC ENT AFB COLO

CPLN PRIORITY	NCC	SECTOR	APPROX PHASE DOWN	GCI/NCC(I) DATE	CPLN DATE	PRODUCTION SET NO.
17	P-53	Chi	Nov 64		31 Jul 65	19
18	P-72	NC	Nov 64		31 Jul 65	20
19	C-8	OTTA	Nov 64		31 Jul 65	21
20	P-54	NY	Dec 64		31 Aug 65	22
21	P-58	Wash	Dec 64		31 Aug 65	23
22	P-40	Syr	Dec 64		31 Aug 65	24
23	P-59	Dos	Jan 65		30 Sept 65	25
24	P-60	Dal	Jan 65		30 Sept 65	26
25	C-5	Bang	Jan 65		30 Sept 65	27
26	P-61	Det	Feb 65		31 Oct 65	28
27	P-16	SSM	Feb 65		31 Oct 65	29
28	P-29	GFKS	Feb 65		31 Oct 65	30
29	P-37	SF	Mar 65		30 Nov 65	31
30	P-44	SEA	Mar 65		30 Nov 65	32
31	P-59	LA	Mar 65		30 Nov 65	33
32	M-93	Min	Apr 65		31 Dec 65	34
33	TM-138	Mont	Nov 63		31 Dec 65	4
34	M-114	Mont	Mar 65		31 Dec 65	1

If there are any valid reasons for changing these priorities they should be submitted to Hq ADC, ADLSP-CA, otherwise these priorities will be adhered to unless new facts or conditions cause NORAD to change them. The first set produced will be used as a test facility at

CONTROL	PAGE NR	NR OF PAGES	SECURITY CLASSIFICATION	INITIALS
ADLSP-CA	2	4		STD

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FROM:

C ENT AFB COLO

SUPPORTING DOCUMENT NO. 35

contractor's plant and will become the 34th OPLN set at M-114 by relocation in March 1965. The second production set will be used for Cat II testing at P-10 and not P-50 as previously approved. The 4th production set will be installed at TM-100 for training. The approximate date above for Phase down of CCI/NCC (Phase I) includes the necessary time (60 to 90 days) for the civil engineers to prepare building for computer installation. (GP 4)

SYMBOL	PAGE NR	NR OF PAGES	SECURITY CLASSIFICATION	INITIALS
ADLSP-CA	4	4		END

DD FORM 1 MAY 55 173-1

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SUPPORTING DOCUMENT NO 36

SECRET

ADMIN (ADC) FORM 66A, MAR 63

SUPPORTING DOCUMENT NO. 36

SECRET

ADMIN (ADC) FORM 66A, MAR 63

CONFIDENTIAL

SUPPORTING DOCUMENT NO. 37

CONFIDENTIAL

ADMIN (ADC) FORM 67A, APR 62

JOINT MESSAGEFORM

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	BOOK	MULTI	SINGLE			
ACTION						
INFO						

FROM:
ADC ENT AFB COLO

TO: ADC CCHD CON DEF SYS CPC L G HANSCOM FLD MASS

INFO ESD L G HANSCOM FLD MASS

SECRET ADLPC 1648

Action CCDSO, AD4SY-Z. Info ESD, MCSCL. Subject: (U) Operational Priority Listing for Phase II DUIC NCCs. Reference your Confidential message AD4SY-Z 3-157Z dated 7 Mar 63 and ESD's letter, subject: Revision of 416M DUIC Master Schedule, 21 March 1963. Because of the reconfiguration of the 416L (SAGE) System during FY 64 time period, the existing operational priorities and site locations DUIC Phase II NCCs have been revised. The following BUIC computerized NCC locations have been deleted: P-49, P-30, C-119, M-96, C-17 and P-29. The following Phase II DUIC locations have been substituted: C-1, M-127, P-81, SM-134, M-123 and TM-101. The new operational priority list for Phase II DUIC NCCs is as

SPECIAL INSTRUCTIONS

Copies to:

AFOAC-HD
ADOAC-AN
ADHLP-CA
ADHRP-R
ADOAC-CE
ADADF-C
ADDDP-PE
ADAHA
ADDTT-C
ADCMO-H
ADOOP-EO
ADLPP-G

DATE	TIME
25	1700Z
MONTH	YEAR
APR	1963

SYMBOL
ADLPC-AC

SIGNATURE

TYPED NAME AND TITLE (Signature, if required)
JOHN F. DEAL, LT COL, USAF

TYPED (or stamped) NAME AND TITLE
CALEB D. PRICE
Colonel, USAF
Director, Aerospace
Command and Control

PHONE 2268 | PAGE NR. 1 | NR OF PAGES 2

SECURITY CLASSIFICATION

WRITE

DO NOT PUNCH

DD FORM 1 MAY 55 173

REPLACES DD FORM 173, 1 OCT. 49, WHICH WILL BE USED UNTIL EXHAUSTED

LPC-1247

JOINT MESSAGEFORM - CONTINUATION SHEET | SECURITY CLASSIFICATION

FROM: CC INT AFD COLO

SUPPORTING DOCUMENT NO. 38

follows: (1) P-10; (2) P-54; (3) P-16; (4) P-61; (5) P-56; (6) P-65; (7) P-27; (8) P-44; (9) P-37; (10) P-76; (11) P-81; (12) C-1; (13) SM-182; (14) M-115; (15) M-88; (16) P-73; (17) P-40; (18) TM-180; (19) TM-181; (20) C-5; (21) SM-184; (22) C-8; (23) P-50; (24) P-60; (25) P-57; (26) P-55; (27) P-53; (28) P-72; (29) P-25; (30) M-127; (31) M-114; (32) M-120; (33) P-45; (34) TM-188. This Headquarters objects to the Proposed DUIC Master Schedule which results in an additional 4 to 5 months disruption of Phase I (Manual) Mode III capability. Request schedule be altered to eliminate unwarranted down time. Additions, deletions and priority list have not been approved by HQ USAF. (GP 4)

OL	PAGE NR	NR OF PAGES	SECURITY CLASSIFICATION	INITIALS
ADLFC-AC	2	2		JFD

DD FORM 1 MAY 55 173-1

☆ U. S. GOVERNMENT PRINTING OFFICE: 1955—552234

SECRET

SUPPORTING DOCUMENT NO. 39

SECRET

ADMIN (ADC) FORM 66A, MAR 63

JOINT MESSAGEFORM

SECURITY CLASSIFICATION

SUPPORTING DOCUMENT NO. 40

SPACE BELOW RESERVED FOR COMMUNICATION CENTER

PRECEDENCE		TYPE MSG (Check)			ACCOUNTING SYMBOL	ORIG. OR REFERS TO	CLASSIFICATION OF REFERENCE
		BOOK	MULTI	SINGLE			
ACTION	ROUTINE						
INFO	ROUTINE		X		AF		

FROM:
ADC ENT AFB COLO

SPECIAL INSTRUCTIONS

TO: CSAF

INFO NORAD

USARADCOM ENT AFB COLO (MAIL)

CANAIRDEF ST HUBERT CANADA

CANAIRHED OTTAWA CANADA

ESD L G HANSCOM FLD MASS

ADC COMD CON DEF SYS CTC L G HANSCOM FLD MASS

25AIRDIV MCCHORD AFB WASH

26AIRDIV HANCOCK FLD N Y

28AIRDIV HAMILTON AFB CALIF

29AIRDIV RICHARDS GEBAUR AFB MO

30AIRDIV TRUAX FLD WISC

32AIRDIV OKLAHOMA CITY AFS OKLA

AAC ELMENDORF AFB ALASKA

SECRET NOFORN EXCEPT CANADA ADLPC 1989

For RCAF CANUSECURITY applies. For AFNOPN, USAF. Info

DATE	TIME
29	1857
MONTH	YEAR
MAY	1963

WRITE

SYMBOL
ADLPC-AC

TYPED NAME AND TITLE (Signature, if required)
JACK D MERRIFT, CAPT, USAF

PHONE 3263 | PAGE NR. 1 | NR. OF PAGES 2

SECURITY CLASSIFICATION

RELEASED

SIGNATURE

TYPED (or stamped) NAME AND TITLE
GALEN D. PRICE
Colonel, USAF
Director, Aerospace
Command and Control

DD FORM 1 MAY 55 173 REPLACES DD FORM 173, 1 OCT. 49, WHICH WILL BE USED UNTIL EXHAUSTED

APC 132C

JOINT MESSAGEFORM - CONTINUATION SHEET

SECURITY CLASSIFICATION

SUPPORTING DOCUMENT NO. 40

ADC ENT AFB COLO

NORAD, NCOP-E; USARADCOM; CANAIRDEF; CANAIRMED; ESD, ESSG; CCDSO, ADMSY-Z; 25 Air Div; 26 Air Div; 28 Air Div; 29 Air Div; 30 Air Div; 32 Air Div; AAC. Subject: (U) Changes to the Phase II BUIC Program. References: NORAD secret message NCOP-E X-156 dated 15 Apr 63 and NCOP-E X-169 dated 24 Apr 63 and ADC secret message ADLPC 1706 dated 8 May 63. This message in three parts. Part I. This headquarters agrees with the additions, deletions and priority list contained in NORAD's secret message NCOP-E X-156, dated 15 Apr 63. Part II. From an operational standpoint it is agreed that selection of M-115 and P-45 has certain advantages that overshadow possible increased survivability and communications considerations that prompted ADC to propose substitution of M-130 for M-115 and P-30 for P-45. Part III. This message is releasable to RCAF personnel assigned to NORAD per paragraph 4 ADCR 205-1. (GP 4)

SYMBOL	PAGE NR	NR OF PAGES	SECURITY CLASSIFICATION	INITIALS
ADLPC-AC	2	2		GDF

DD FORM 1 MAY 55 173-1

☆ U. S. GOVERNMENT PRINTING OFFICE: 1955—[illegible]

SECRET

SUPPORTING DOCUMENT NO. 41

SECRET

ADMIN (ADC) FORM 66A, MAR 63

SECRET

SUPPORTING DOCUMENT NO. 41

SECRET

ADMIN (ADC) FORM 66A, MAR 63

JOINT MESSAGEFORM

SECURITY CLASSIFICATION

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SUPPORTING DOCUMENT NO. 42

PRECEDENCE	TYPE MSG (Check)			ACCOUNTING SYMBOL	ORIG. OR REFERS TO	CLASSIFICATION OF REFERENCE
	BOOK	MULTI	SINGLE			
ACTION ROUTINE		X		AF		
INFO ROUTINE						

FROM: ADC ENT AFB COLO

SPECIAL INSTRUCTIONS
Copy to
ADCOP-EO

TO: 2SAIRDIV MCCHORD AFB WASH
2SAIRDIV HANCOCK FLD N Y
2SAIRDIV HAMILTON AFB CALIF
2SAIRDIV RICHARDS GEBAUR AFB MO
3SAIRDIV TRUAX FLD WISC

INFO: NORAD
CAMAIRDEF ST HUBERT CANADA

SECRET NOFORN EXCEPT CANADA ADLPC 2195

For RCAF CAMUSECURITY APPLIES. Action for COP at each address. Info for NORAD, NCOP-E; CAMAIRDEF, SCSO. Subject: (U) Phase II DUIC Installation. This message in four parts. Part I for all addressees. NORAD secret message, NCOP-E M-156, 15 April 1963 states a requirement for maintaining adequate manual (Phase I DUIC) capability during the time required to modify the NCC operations room and install the Phase II computer/equipments. The

DATE 21 | TIME 1856Z
MONTH JUNE | YEAR 1963

WRITE

SYMBOL ADLPC-AC

TYPED NAME AND TITLE (Signature, if required) JACK D. HERRITT, CAPT, USAF

PHONE 3283 | PAGE NR. 1 | NR. OF PAGES 5

SECURITY CLASSIFICATION

RELEASE

SIGNATURE

TYPED (or stamped) NAME AND TITLE
GALEN D. PRICE
Colonel, USAF
Director, Aerospace
Command and Control

DD FORM 1 MAY 55 173 REPLACES DD FORM 173, 1 OCT. 49, WHICH WILL BE USED UNTIL EXHAUSTED

JOINT COMMUNICATIONS-ELECTRONICS SUBJECT	SECURITY CLASSIFICATION
FROM: EMT AFB COLO	SUPPORTING DOCUMENT NO. 42

operations room must be vacated to permit modification of building, at all NCC sites not receiving new construction, at least 3 months prior to scheduled installation of Phase II computer/equipments. Formal USAF approval and scheduling has been received on only the first 10 production AN/GSA-51 BUIC installations, as follows:

Equip No.	Site	Installation DOD	Operational Date
1	M-114 (In Plant)	1 Jun 65	NLT 31 Dec 65
2	P-10 (Cat I/II Test)	15 Nov 63	15 Jan 65
3	TM-198 (Opr Training)	15 Dec 63	NLT 31 Dec 65
4	ATC	-	-
5	P-54	1 May 64	15 Mar 65
6	P-16	1 Sep 64	1 May 65
7	P-61	1 Oct 64	1 Jun 65
8	P-56	1 Oct 64	1 Jun 65
9	P-65	1 Oct 64	1 Jun 65
10	P-27	1 Nov 64	1 Jul 65

For the remaining sites, as with those already approved, DOD will be governed by equipment production rate and by site priority. Operational date should follow DOD by 8 - 10 months. For current planning, to include plans for interim manual operations, the following DODs should be used. Changes will be relayed upon receipt.

Site	Installation DOD

DATE	PAGE NR	NR OF PAGES	SECURITY CLASSIFICATION	INITIALS
1 Oct	2	5		JDH
ADLPC-AC				

DD FORM MAY 65 173-1

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[illegible] - CONTINUATION SHEET	SECURITY CLASSIFICATION

SUPPORTING DOCUMENT NO. 42

[illegible]OC ENT AFB COLO

Site	Installation DOD
P-37	1 Nov 64
P-76	1 Nov 64
P-81	1 Dec 64
C-1	1 Dec 64
SM-132	1 Dec 64
M-115	1 Jan 65
M-98	1 Jan 65
P-73	1 Jan 65
P-40	1 Feb 65
TM-130	1 Feb 65
TM-131	1 Feb 65
[illegible]-5	1 Mar 65
M-99	1 Mar 65
C-8	1 Mar 65
P-50	1 Apr 65
P-69	1 Apr 65
P-57	1 Apr 65
P-59	1 May 65
P-53	1 May 65
P-72	1 May 65
P-25	1 Jun 65
M-127	1 Jun 65
P-45	1 Jun 65
[illegible]-126	1 Jul 65

[illegible]	PAGE NR	NR OF PAGES	SECURITY CLASSIFICATION	INITIALS
ADLPC-A	3	5		

DD FORM 1 MAY 55 173-1

☆ U. S. GOVERNMENT PRINTING OFFICE: 1955—552236

[redacted] - COMMUNICATION SHEET | SECURITY CLASSIFICATION | SUPPORTING DOCUMENT NO. 42

ENT AFB COLO

This Hq desires to maintain the maximum possible manual capability during this interim period, realizing some degradation must be accepted. The degree of manual capability to be retained, and the means of providing same will vary from site to site dependent upon local conditions. Therefore each division is requested to furnish this Hq, NLT 15 July, proposal for maintaining adequate manual back-up capability at each NCC/CCI site requiring modification of the operations building. Part II for all addressees. Proposal should be developed considering end realignment configuration for Phase I DUIC as proposed in NORAD secret message NOOP-E K-201, 11 Jun 63. Part III 26 Air Div only. P-10 is recognized as a unique case because of the early EOD required (15 Nov 63) for installation of AN/GSA-51 equipment in the operations room. Therefore this headquarters approves establishment of an interim manual operation at Site P-10. This relocation of operations must be accomplished prior to 1 Aug 63. No additional communication circuits are necessary to P-10 since P-50 NCC can continue operation in present facilities until 1 Jan 65 and P-10 is scheduled to be operational as a Phase II NCC on 15 Jan 65. Your secret message 26 LPR 10432 indicates a minimum 2 scope CCI operation (Control) can be provided at P-10, not costing an $800 for relocation. Communication relocation should

ADLPC-AC	PAGE NR 4	NR OF PAGES 5	SECURITY CLASSIFICATION	INITIALS

DD FORM MAY 64 173-1

☆ U. S. GOVERNMENT PRINTING OFFICE: 1963—682250

...-COMMUNICATION SHEET

SUPPORTING DOCUMENT NO. 6v

...ENT AFB COLO

accomplished by local work order to the maximum
...ent possible. Request this headquarters be advised
capability to accomplish this task by 1 Aug 63 and where
...erim operation will be located in existing on-site
...ee. Part IV for 26 Air Div only. In selection of
...se II DUIC sites to be computerized, and establishing
...ority for operational status, the points raised in
...r secret msg 26 LPR 63-10432 were considered. This
...adquarters is attempting to provide the best overall
... defense posture attainable, with consideration given
...ority defense areas, the threat, and to vulnerability
command and control facilities. Site TL-198 is
...eduled to receive AN/GSA-51 equipment before other
...tes in higher priority defense areas to satisfy an
...erator training requirement. This message and ADC
...ret message ADLPC 1936, 29 May 63, constitute reply
your secret message 26 LPR 63-10432, 25 Apr 63 and
...clas message 26 LPR 1062, 3 June 63. (GP 4)

	PAGE NR	NR OF PAGES	SECURITY CLASSIFICATION	INITIALS
ADLPC-AC	5	5		JDI

...AF 178-1

☆ U.S. GOVERNMENT PRINTING OFFICE

SUPPORTING DOCUMENT NO. 43

SECRET

ADMIN (ADC) FORM 66A, MAR 63

SECURITY CLASSIFICATION

JOINT MESSAGEFORM

SUPPORTING DOCUMENT NO. 44

SPACE BELOW RESERVED FOR COMMUNICATION CENTER

CONFIDENTIAL

	PRECEDENCE	TYPE MSG (Check) BOOK	MULTI	SINGLE	ACCOUNTING SYMBOL	ORIG. OR REFERS TO	CLASSIFICATION OF REFERENCE
ACTION	ROUTINE						
INFO	ROUTINE		X		AF		

FROM: ADC ENT AFB COLO

SPECIAL INSTRUCTIONS

TO: CSAF

INFO NORAD

ADC COMD CON DEF SYS OFC L G HANSCOM FLD MASS

ESD L G HANSCOM FLD MASS

ADC COMPUTER PROGRAMMING SYS TNG OFC SANTA MONICA CALIF

CONFIDENTIAL NOFORN EXCEPT CANADA ADLPC 5976

Action for AFXOPN, USAF. Info NOOP-N, NORAD; AD4SY, CCDSO; AD8CM, APASTO; ESSG, ESD. Subject: (U) DUIC NCC Construction. This message in 2 parts. Part I. Reference telecon from Col Paul, AFXOPN concerning release of funds and authority for construction on DUIC NCCs Z-44, 37, 81, 132, 98, 115, 180, and 181. Per earlier instructions contained in your 21 Nov AFXOPN 72657, an extensive radar study is being conducted that could have impact on NCC selection. However, at

DATE 11 | TIME [illegible]

MONTH DEC | YEAR 1963

WRITER

SYMBOL: ADLPC-AC

TYPED NAME AND TITLE (Signature, if required): JAMES R. LAKEY, LT COL, USAF

PHONE 3263 | PAGE NR. 1 | NR. OF PAGES 2

SECURITY CLASSIFICATION

RELEASER

SIGNATURE

TYPED (or stamped) NAME AND TITLE

[illegible] PRICE
Colonel, USAF
Director, Aerospace
Command and Control

DD FORM 1 MAY 65 173 REPLACES DD FORM 173, 1 OCT. 49, WHICH WILL BE USED UNTIL EXHAUSTED

ARMY-AIR FORCE - COMMUNICATION SECTION	SECURITY CLASSIFICATION
ADC ENT AFB COLO CONFIDENTIAL	SUPPORTING DOCUMENT NO. 44

this point in the study, it can be said with reasonable certainty that 37, 81, 132, 115 and 180 will be in the final configuration list. 98 and 181 are also good candidates for retention though not as certain as the first five. Z-44 is virtually certain to be retained as a radar; its use as an NCC is, however, under question. Z-46 has been recommended as a replacement. This matter will be addressed by separate message. Part II. Recommend release on 37, 81, 132, 115 and 180 and temporary hold on the other 3. (GP 4)

	PAGE NR	NR OF PAGES	SECURITY CLASSIFICATION	INITIALS
ADLPC-AC	2	2		JRL

DD FORM MAY 55 173-1

☆ U. S. GOVERNMENT PRINTING OFFICE: 1955—844744

JOINT MESSAGEFORM

SECURITY CLASSIFICATION
SUPPORTING DOCUMENT NO. 45

SPACE BELOW RESERVED FOR COMMUNICATION CENTER

CONFIDENTIAL

	PRECEDENCE	TYPE Msg (Check)			ACCOUNTING SYMBOL	ORIG. OR REFERS TO	CLASSIFICATION OF REFERENCE
		BOOK	MULTI	SINGLE			
ACTION	ROUTINE						
INFO	ROUTINE		X		AF		

FROM: ADC ENT AFB COLO

SPECIAL INSTRUCTIONS

TO: CSAF

INFO NORAD

ADC COMD CON DEF SYS OFC L G HANSCOM FLD MASS

ADC COMPUTER PROGRAMMING SYS TNG OFC SANTA MONICA CALIF

ESD L G HANSCOM FLD MASS

25AIRDIV MCCHORD AFB WASH

CANAIRDEF ST HUBERT CANADA

CONFIDENTIAL NOFORN EXCEPT CANADA ADLPC 5979 FOR RCAF CANUSECURITY APPLIES. Action USAF, AFXOPN. Info: NORAD, NCOP-E; CCDSO, AD4SY; APASTO, AD3CH; ESD, ESSG; 25 Air Div, COP; CANAIRDEF, SOSO. Subject: (U) Change of BUIC II NCC. This message in four parts. Part I. Request USAF approval for designation of Z-46 as a BUIC II NCC in lieu of Z-44 at the same position on the priority schedule. Part II. Rationale. (a) Better and

DATE 12 | TIME 2007
MONTH DEC | YEAR 1963

WRITER

SYMBOL ADLPC-AC

SIGNATURE CONFIDENTIAL

TYPED NAME AND TITLE (Signature, if required)
JAMES R. LAKEY, LT COL, USAF

PHONE 3263 | PAGE NR. 1 | NR. OF PAGES 2

SECURITY CLASSIFICATION

RELEASER

TYPED (or stamped) NAME AND TITLE
[redacted]
Colonel, USAF
Director, Aerospace
Command and Control

DD FORM 1 MAY 58 173

REPLACES DD FORM 173, 1 OCT. 48, WHICH WILL BE USED UNTIL EXHAUSTED

SECURITY CLASSIFICATION

SUPPORTING DOCUMENT NO. 45

C ENT AFB COLO CONFIDENTIAL

more building space at Z-46; (b) Better communications potential at Z-46; (c) Z-44 is an isolated site, Z-46 is not; (d) Z-44 has assignment restrictions that do not apply to Z-46; (e) Survivability is comparable; (f) Construction has not been started at Z-44; (g) Communications have not been ordered; and (h) From a construction viewpoint, Z-46 is by far the best. Limited space and unique terrain at Z-44 will dictate difficult and extremely expensive construction methods. Part III. Early decision is required to preclude slip in schedule. Part IV. This change has NORAD concurrence. (GP 4)

CONFIDENTIAL

SYMBOL	PAGE NR	NR OF PAGES	SECURITY CLASSIFICATION	INITIALS
ADLPC-AC	2	2		JRL

DD FORM MAY 55 173-1

☆ U. S. GOVERNMENT PRINTING OFFICE: 1962—644744

JOINT MESSAGEFORM

SECURITY CLASSIFICATION: SECRET

SPACE BELOW RESERVED FOR COMMUNICATION CENTER

SUPPORTING DOCUMENT NO. 46

PRECEDENCE	TYPE MSG (Check)			ACCOUNTING SYMBOL	ORIG OR REFERS TO	CLASSIFICATION OF REFERENCE
	BOOK	MULTI	SINGLE			
ACTION ROUTINE						
INFO ROUTINE						

FROM:
ADC ENT AFB COLO

SPECIAL INSTRUCTIONS

TO:
CSAF

INFO: AFSC ANDREWS AFB MD
ESD LG HANSCOM FLD MASS
ARC COMD CON DEF SYS OTC LG HANSCOM FLD MASS

SECRET ADLDC 246

Action CSAF AFIDC, AFCOP and AFIPD-CADS. Info AFSC; ESD; ADC CCDSO. Subject: Elimination of 6 SAGE DCs and 17 radars. This message in four parts. PART I. Reference Alfa, message AFCOP 64659, 27 Dec 62; Bravo, message AFIDC 65734, 4 Jan 63; Coco, ADC Preliminary Study for Reconfiguration of Command and Control System 416L/M, 15 Jan 63; Delta, letter AFSC Comments on ADC Reconfiguration of 416L/M. The Delta reference is available to this hq only as an undated draft. The Coco reference was available to ESD only in draft form at the time ESD prepared

DATE: 25 | TIME: 0020
MONTH | YEAR

ORIG SYMBOL: ADLDC-C

SIGNATURE

WRITER

TYPED NAME AND TITLE (Signature, if required)
Colonel Hugh J. Dow

PHONE | PAGE NR. 1 | NR OF PAGES 5

SECURITY CLASSIFICATION

RELEASER

TYPED (or stamped) NAME AND TITLE
H. A. EARLY
Brig Gen, USAF
Asst DCS/Plans

SECRET

DD FORM 1 MAY 55 173 REPLACES DD FORM 173 1 OCT 49, WHICH WILL BE USED UNTIL EXHAUSTED

LSP-1075

COMMANDER'S READING FILE

JOINT MESSAGEFORM - CONTINUATION SHEET

SECURITY CLASSIFICATION: SECRET

FROM: ADC INT AFD COLO

SUPPORTING DOCUMENT NO. 4/6

message is submitted to clarify[illegible]t discrepancies between the ADC Preliminary Study and ESD comments thereon.

PART II. Reference Delta, paragraph 1.a(1)1, Programmed BUIC Track Capacity. ESD has indicated that the programmed equipment has the capability to track eighty aircraft and perform twenty intercepts (80/20). This statement requires clarification. SDC/MITRE have recently estimated the programmed BUIC equipment can be programmed to process 80 tracks. This theoretical capacity is however limited by other factors, the most important being the number of operator consoles available. The six consoles of programmed BUIC would normally be manned by a Senior Director (SD), three Intercept Directors (IND) and two Air Surveillance Technicians (AST). As indicated in Tab III F of reference Coco, the normal operating capability of programmed BUIC is judged by ADC to be 12 interceptor and 24 hostile tracks. This capability is based on 12 hostile tracks per AST and 4 intercepts per IND. This normal operating capacity can probably be increased by assigning to the IND/INT teams both interceptor and hostile tracks for track monitoring action. Each IND/INT team would in this case be responsible for track monitoring action on up to 4 interceptor and 4 hostile tracks. A theoretical maximum operational capacity of 36 hostile and 12 interceptor tracks may be

SECRET

OL	PAGE NR	NR OF PAGES	SECURITY CLASSIFICATION	INITIALS
ILSP-C	2	5		

DD FORM 1 MAY 55 173-1

☆ U. S. GOVERNMENT PRINTING OFFICE: 1955—332236

JOINT MESSAGEFORM - CONTINUATION SHEET | SECURITY CLASSIFICATION

ADC ENT AFB COLO | SUPPORTING DOCUMENT NO. SECRET 4/6

achieved with the programmed DUIC equipment. PART III. Reference Delta paragraph 1c(1)(a). Improved DUIC Concept of Operations. Sections III and IV of reference Coco indicate the operational capacity and concept of operations for Improved DUIC. NSD has indicated the NCC/CP should have the capability to process two or three hundred tracks to support the Improved DUIC concept. This area obviously requires clarification. Each of the two subordinate NCCs in a Sector would be equipped with 3 operator consoles and be manned as follows: One Weapons Director (WD), four IHDs and three ASTs. The eight consoles in the NCC/CP would be manned by one Sector Commander (SC), one SD, one WD, four IHDs and one Air Surveillance Officer (ASO). Using the same track ratio as that described for programmed DUIC, the normal operational capability of each of the subordinate Improved DUIC NCCs would be 36 hostiles and 16 interceptors for a total of 52 tracks. Together, the two NCCs would forward to the NCC/CP a total of 104 tracks for display only. The NCC/CP will display radar data (approximately 20,000 feet and above) throughout the Sector from its 8 tied radars. The NCC/CP may therefore assume tracking and intercept responsibility for any high altitude hostile track being carried by one of its subordinate NCCs by assigning

SECRET

ENT AFB-C | NR 3 | NR OF PAGES 5 | CLASSIFICATION | INITIALS

DD FORM 1 MAY 55 173-1

☆ U. S. GOVERNMENT PRINTING OFFICE: 1955—352234

JOINT MESSAGEFORM - CONTINUATION SHEET

SECURITY CLASSIFICATION: SECRET

FROM: ADC ENT AFB COLO

SUPPORTING DOCUMENT NO. 46

appropriate interceptor weapons to one of the four IND/ INT teams at the NCC/CP. It appears possible to accommodate up to 16 hostile and 16 interceptor tracks at the NCC/CP by assigning 4 hostile and 4 interceptor tracks to each of these teams for tracking and intercept action. The total track capacity envisaged by ADC for normal Improved BUIC NCC/CP operations is therefore 104 tracks for display from the two subordinate NCCs and up to 32 self-generated tracks for a total of 136. However, as demonstrated by SAGE experience, it is unlikely that a perfect distribution of hostile and interceptor tracks will ever occur which would permit attainment of this operator capacity and the actual track saturation capacity of the Improved BUIC Sector would likely be somewhere nearer the 100 track figure. ADC concurs with the ESD comment concerning raid forming. As an operational procedure the subordinate NCCs would undoubtedly form and forward raid tracks where possible to the NCC/CP as track capacity was approached. This action would of course, further improve the track handling capacity of the Improved BUIC Sector. PART IV. The objective in the whole track capacity/concept of operations BUIC area is the maintenance of an effective, integrated Sector operational capability following destruction of a Sector SAGE DC. It appears possible to

SECRET

OC: ADLSP-C

PAGE NR: 4 | NR OF PAGES: 5 | SECURITY CLASSIFICATION | INITIALS

DD FORM 1 MAY 55 173-1

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JOINT AUTOMATIC - CONTINUATION SHEET | SECURITY CLASSIFICATION

SUPPORTING DOCUMENT NO. 116

ADC ENT AFB COLO

place up to 48 interceptor and 32 hostile tracks under comparable, centralized battle management of a single alternate Sector NCC/CP Commander when using the increased capabilities of Improved BUIC. This improved capability must be compared with the fractured, semi-autonomous three sub-Sector capability of a comparable Sector employing the limited capacity programmed BUIC equipments. (CP-3)

SECRET

SECRET

	PAGE NR	NR OF PAGES	SECURITY CLASSIFICATION	INITIALS
ADLSP-C	5	5	SECRET	

DD FORM 173-1

SECRET

SUPPORTING DOCUMENT NO. 47

SECRET

ADMIN (ADC) FORM 66A, MAR 63

JOINT MESSAGEFORM

SECURITY CLASSIFICATION: SECRET

SPACE BELOW RESERVED FOR COMMUNICATION CENTER

SUPPORTING DOCUMENT NO. 48

PRECEDENCE	TYPE MSG (Check)			ACCOUNTING SYMBOL	ORIG. OR REFERS TO	CLASSIFICATION OF REFERENCE
	BOOK	MULTI	SINGLE			
ACTION PRIORITY			X	AF		
INFO						

FROM: HQ ADC

TO: CSAF

SECRET ADCCR 2630

Personal for LeMay from Lee. Deliver during normal duty hours. Subject: CAD Study. The Continental Air Defense Study, directed by the Secretary of Defense, represents a thorough and comprehensive examination of the manned bomber defense problem. The completed report with its conclusions and recommendations presents a plan for an orderly phasing into a survivable and effective air defense system, however the report was forwarded to OSD minus conclusions and recommendations by the Air Force. I am concerned over recent actions which indicate that various elements of the CADS report are being treated in isolation. On 25-26 June 1963, personnel from Hq USAF presented to representatives of ADC and NORAD, a draft Program Change Proposal (PCP) for forty six Improved BUIC NORAD Control Centers in support of the CAD Study.

SPECIAL INSTRUCTIONS

DOWNGRADED AT 3 YEAR INTERVALS; DECLASSIFIED AFTER 12 YEARS. DOD DIR 5200.10 Group 4

DATE	TIME
MONTH: JUL	YEAR: 63

WRITER

SYMBOL: ADLPM

TYPED NAME AND TITLE (Signature, if required): Col A. K. McDonald, Dep Dir, ADLPM

PHONE: 3234 | PAGE NR. 1 | NR. OF PAGES 2

SECURITY CLASSIFICATION: SECRET SECRET

RELEASER

SIGNATURE

TYPED (or stamped) NAME AND TITLE:
ROBERT M. LEE
Lieutenant General, USAF
Commander

DD FORM 1 MAY 58 173 REPLACES DD FORM 173, 1 OCT 48, WHICH WILL BE USED UNTIL EXHAUSTED

LPW 3048

SECRET

JOINT MESSAGEFORM - CONTINUATION SHEET | SECURITY CLASSIFICATION: SECRET

FROM: HQ ADC | SUPPORTING DOCUMENT NO. 48

The proposals in the CADS report are closely interrelated and present a plan and schedules for the integration of a whole air defense system. Submission of a PCP to OSD for Improved NUIC without regard to supporting command and control elements such as Airborne Warning and Control System and the FAA/DOD National Airspace Utilization System and future weapon requirements (INI) is reminiscent of our recent experience with the NORAD Manned Bomber Defense Study which resulted in the deletion of 6 Direction Centers and 17 radars. Fragmentary action on elements of the CADS report could result in a degraded air defense system. Request this Headquarters be advised of actions being taken on all recommendations contained in the CADS report. GP 4.

SOL	PAGE NR	NR OF PAGES	SECURITY CLASSIFICATION	INITIALS
ADLPW	2	2	SECRET	

DD FORM 1 MAY 55 173-1

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SUPPORTING DOCUMENT NO. 49

PRECEDENCE		TYPE MSG (Check)			ACCOUNTING SYMBOL	ORIG. OR REFERS TO	CLASSIFICATION OF REFERENCE
		BOOK	MULTI	SINGLE			
ACTION	PRIORITY		X				
INFO	ROUTINE						

FROM: ADC ENT AFB COLO

TO: ADC COMD CON DEF SYS OFC LG HANSCOM FLD MASS

INFO: CSAF

SPECIAL INSTRUCTIONS

Copy To:
ADLDC

SECRET ADLDC

Action for AD4SY. Info for AFXOP-DENC. Subject: (U) L System Review. This message in 6 parts. PART I. References: 1. CCDSO unclassified message AD4SY-3222, 3 July 1963; 2. USAF unclassified letter, subject, "L" Systems Review, 14 June 63; 3. ADC unclassified message ADLDC 25388, 11 July 63; 4. ADC unclassified message ADLDC 25389, 11 July 63. PART II. Reference 4 above requested of USAF that ADC be invited to send representatives to L System briefings pertinent to ADC. This request was denied. PART III. With regard to specific questions posed in your message (reference 1), the following is submitted: 1. General. The CADS Report is considered by ADC to be a valid and comprehensive study

DATE	TIME
17	2230Z
MONTH	YEAR
JULY	1963

WRITER

SYMBOL: ADLPC-AC

TYPED NAME AND TITLE (Signature, if required): JAMES R. LAMBY, Lt Col, USAF

PHONE: 3263 | PAGE NR. 1 | NR. OF PAGES 3

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RELEASER

SIGNATURE

TYPED (or stamped) NAME AND TITLE

PAUL T. PREUSS
Major General, USAF
DCS/Plans

DD FORM 1 MAY 55 173 REPLACES DD FORM 173, 1 OCT. 49, WHICH WILL BE USED UNTIL EXHAUSTED

LPC-1405

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FROM: ADC ENT AFB COLO

that provides the basic framework on which major future decisions on both weapons and control systems can be based. Some recommendations contained in the CADS report are however dependent on other decisions, some of which must be made outside the Department of Defense. For example, the CADS philosophy of peacetime identification from NAUS Centers will depend on FAA concurrence and lengthy implementation actions. Other CADS requirements may vary depending on future weapons systems selected. For example, the F-4 system requires more elaborate ECCM than the other weapons studied. 2. In view of the above, it is considered premature at this time to delete those requirements shown in SCR 79 that are not in complete agreement with CADS; for example, ECCM. PART IV. This headquarters has no knowledge of OSD response to the CADS report. Approval of CADS in whole or in part would have large impact on 416L across the board. PART V. In view of the pending high level decisions concerning 416L/M, it is strongly recommended that the SPO attempt to get the 416L and M presentations cancelled or delayed. If this is not possible, then suggest that those requirements outlined in SCR 79 be supported. Note however that both ADC and NORAD have gone on record for an improvement in BUIC, independent of the CADS report. PART VI. With regard to the SPO request for a new intelligence

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FROM:

ADC ENT AFB COLO

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estimate, the June 1963 input from ADC to the 41CM SPD (section IV) may be used. (CP-4)

TOOL	PAGE NR	AS OF PAGES	SECURITY CLASSIFICATION	INITIALS
ADLPC-AC	3	3	SECRET	JRL

DD FORM 1 MAY 55 173-1

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ADMIN (ADC) FORM 66A, MAR 63

SUPPORTING DOCUMENT NO. 51

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ADMIN (ADC) FORM 66A, MAR 93

SUPPORTING DOCUMENT NO 51

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ADMIN (ADC) FORM 66A, MAR 63

SUPPORTING DOCUMENT NO. 52

HEADQUARTERS
AIR DEFENSE COMMAND
UNITED STATES AIR FORCE
ENT AIR FORCE BASE, COLORADO, 80912

EXT 3263

10 JAN 1964

SHIELD OF FREEDOM

REPLY TO ATTN OF: ADLPC-AA/Lt Col Wright

SUBJECT: (U) AWACS Draft PSPP

TO: ADCIO-H (Mr. D. Volan)

Forwarded for your information and retention as per your request.

RAYMOND S. WESTERMAN
Lt Col, USAF
Chief, Air Surveillance
and Control Division

1 Atch
Section 14 ASD 19 Dec 63
(U) General Information
(Draft PSPP) (Xerox Cy)
(S)

LPC-1934

HEADQUARTERS
AIR DEFENSE COMMAND
UNITED STATES AIR FORCE
ENT AIR FORCE BASE, COLORADO, 80912

AREA CODE 303
EXT: 3263

SUPPORTING DOCUMENT NO. 52

10 JAN 1964

SHIELD OF FREEDOM

REPLY TO
ATTN OF: ADLPC-AA/Lt Col Wright

SUBJECT: (U) AWACS Draft PSPP

TO: ADCIO-H (Mr. D. Volan)

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and Control Division

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SECTION 14 SUPPORTING DOCUMENT NO 1st Dec 63 32

(U) GENERAL INFORMATION (DRAFT PSPP)

15.0 General:

This section provides background information on the evolution of the AWAC requirement and system.

15.1 Background:

15.1.1 ADCP/BOMARC Deployment in USAFE October 1961:

In October 1961, ASD, at the request of Hq USAF, presented a plan to Hq USAF for deployment of dispersed BOMARCs in USAFE. It was determined through analysis by USAFE personnel that the 412L did not have sufficient survivability to justify BOMARCs in Europe. As a result, the USAF requested ASD to determine how the survivability of the USAFE Command and Control System could be improved. ASD considered the only solution to the problem was an airborne surveillance and control system. Since the major threat was considered low altitude, a system was configured using the P3V aircraft with bottom mounted doppler radar providing coverage from sea level to 40,000 feet out to 200 nautical miles on a 10-square meter target. The total system was configured from existing equipment and was proposed to be made available in 36 months. The study under the name of Airborne Defense Command Post (ADCP) was presented to ESD, Hq AFSC and Hq USAF. Before the study reached USAFE they ruled against BOMARC deployment in Europe. However, the study created sufficient interest at Hq USAF such that ASD was asked to conduct a similar study for the CONUS. Half-way through the effort the study was further expanded to take into consideration global deployment for use in limited war areas.

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15.1.2 ADCP for Global Deployment - March 1962:

The ADCP took on a different configuration from the one proposed for USAFE. The altitude coverage was increased along with radar performance. Since rapid deployment was required, the aircraft was changed from a prop aircraft to a pure jet, the KC-135B. Industry was asked to participate on a voluntary basis to provide the USAF with their ideas on how the system should be configured. As a result of this combined ASD/Industry effort, a study was completed in March 1962, and presented to Hq AFSC and Hq USAF. At the briefings ASD was requested to brief the users (TAC, ADC, STRIKE COM). The briefings were made to the users during the months of July and August 1962. As a result of these briefings, the users initiated draft QOR's.

15.1.3 Joint ADC/TAC/STRIKE COM/ESD/ASD Meeting - September 1962:

As a result of these briefings ASD saw the possibility of the users generating a Joint QOR for the AMAC system. A meeting was held at ASD in September 1962 to discuss the possibility of such action and preparation of a Joint QOR. At this meeting it was determined that the ADCP name was misleading and confusing with programs going on under ADC-59 and that a different name should be used. Further work by the users to prepare a Joint QOR proved futile. The users felt that a better approach to the problem would be a Joint SOR and would recommend this in their letter of transmittal with their QOR's.

15.1.4 User QOR's - October 1962:

Both users submitted QOR's in October 1962. The TAC QOR called for 200 nautical miles on one square meter. However, ADC QOR called for 400 nautical miles on one square meter. This increase in performance resulted

from their discussions with contractors that were more optimistic than ASD. ASD briefed the USAF in December 1962 on the Joint SOR concept and assisted the USAF in preparing the draft SOR. ASD also informed the USAF that the 400 nautical miles system was unreasonable for a 40-month program and if serious consideration was given to the 400 nautical miles system, operational availability would be delayed some 10 to 12 months beyond that of the 200 mile system. The draft SOR was published under the name of AWAC.

15.1.5 Continental Air Defense Study - May 1963:

In February 1963 a study group was organized to study air defense requirements for the post 1970 time period. This study considered several interceptor configurations as well as control environments. As a result of war gaming where the primary threat was ballistic missiles, it was determined that no ground based control system had the necessary predictable survivability to effectively utilize an interceptor fleet against the follow-on bomber attack. As a result, one of the recommendations of the study was that the AWAC system be developed and procured for Continental Air Defense.

15.1.6 SOR 206 AWAC - June 1963:

After a review of the SOR by all the users and divisions of Hq AFSC, the SOR for the AWAC was published 12 June 1963. SOR 206 was sent to Hq AFSC in July 1963 for preparation of a PSPP.

15.1.7 DOD Interest in AWAC - June 1963:

As a result of DOD personnel participating in the Continental Air Defense Study and industry briefings on airborne surveillance radars, Secretary McNamara directed DDR&E to look into the feasibility of overland radars. As a result DDR&E conducted an in-house study and submitted it to Secretary McNamara. DDR&E's reply concurred in the requirement and recommended that

the USAF look carefully at the Navy E2A as an interim measure with a follow-on program using a larger aircraft to meet the total requirement. Secretary McNamara concurred in this approach and has asked the USAF to provide a study along these lines.

15.1.8 Project Forecast - July 1963:

As a result of work going on at Project Forecast, ASD was requested to justify their position for an SOR approach instead of an ADO approach on AWAC. The NSD representation at Forecast questioned the risk associated with radar and recommended an ADO approach to prove out the feasibility of an over-land radar. ASD considered the ADO approach on the radar for a 200 nautical mile system, duplication of the Navy NCA overland program, and could not recommend this approach. ASD considers that there are demonstrated techniques that can solve the clutter problem and an SOR approach should be pursued for AWAC. In addition, a follow-on ADO program providing a quantum increase in performance should be initiated, not an ADO for 200 nautical mile system. The Forecast people were provided with a brief discussion of the draft ADO in the USAF calling for 500 nautical miles on the threat of the post 1975 time period. As a result of the ASD presentation, Project Forecast personnel accepted ASD's position.

15.1.9 E2A Evaluation - July 1963:

In July 1963 ASD was requested to evaluate the following:

a. The three aircraft DC-8F, C-141 and C-135B with regard to cost, schedules and performance.

b. Evaluate different brochures received from industry on the AWAC radar.

c. The E2A against the AWAC requirements.

The study was completed in July and submitted and presented to Hq AFSC and Hq USAF. The following conclusions and recommendations were evolved at:

a. Conclusions:

(1) The C-135B represents the cheapest program even with a shut down in the production line.

(2) All three aircraft (DC-8F, C-141 and C-135B) can perform the AWAC mission.

(3) Demonstrated radar techniques are available to solve the overland clutter problem and meet the requirements of the COR.

(4) There was no basis for a radar competition, all the different approaches have merit and could provide a solution to the overland clutter problem.

(5) Demonstrated radar techniques are available to solve the overland clutter problem.

(6) The DCA Naval Tactical Data System cannot perform the AWAC mission regardless of the extent of the modifications. The system lacks range, endurance and space to meet AWAC requirements.

(7) The DCA overland radar program will provide an overland capability 20 to 30 months earlier than the AWAC system.

b. Recommendations:

(1) Proceed with the COR AWAC program using the C-135B aircraft with bailed C-135B aircraft for the test program.

(2) Make the radar subsystem a competitive procurement.

(3) If CINCSAC requires earlier availability of an overland airborne radar, request the DOD to direct the Navy to support the STRIKE Command with the Naval Tactical Data System.

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15.1.10 Air Scientific Advisory Board - August 1963:

In August 1963 Under Secretary, Air Force requested the Air Force Scientific Advisory Board to review the feasibility of developing an overland airborne surveillance radar. The ASD position as well as that of the Navy was that an overland radar could be built to track targets in ground clutter. ESD with MITRE representation seriously questioned the feasibility of soloing the ground clutter problem. The final recommendations of the SAB which were submitted in October 1963 recommended that no system application should be considered until an overland radar capability was demonstrated. The further recommended that the Air Force should initiate two programs; one using existing equipments to evaluate the magnitude of the clutter problem and evaluate clutter rejection techniques for near term application and the other using phased arrays to satisfy the far term requirements.

15.1.11 Sole Source PSPP - September 1963:

In September 1963 a Proposed System Package Program was submitted to Hq AFSC for approval and transmittal to Hq USAF. The PSPP called for two prototype test articles and sole source direction to Boeing Aircraft Company on the C-135B airframe. The sole source direction was rejected by Hq AFSC and ASD was requested to re-write the PSPP to reflect a competitive procurement for the aircraft. Also at the time of submittal no decision as to lead division (between ASD and ESD) had been made and as a consequence the management section of the PSPP was not to explicit on the division of responsibility between the two divisions. Along with the re-direction on the PSPP ASD was designated a lead division.

15.1.12 Hq AFSC Approved PSPP - October 1963:

In October 1963 a revised PSPP showing an aircraft competition was

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submitted by ASD to Hq AFSC. The PSPP was reviewed and approved by Hq AFSC for submittal to Hq USAF. The PSPP was briefed to the TAC/ADC Panels, the Air Staff Board and the Air Council. The PSPP was rejected by the Air Council because of the three aircraft being considered for the ADC being out of production before ADC production started. Therefore, the Air Council directed AFSC to re-write the PSPP to reflect the following:

a. A component development program to meet the requirements of SOR 206.

b. Use of a baiked aircraft.

c. The total effort should be aimed at application to an aircraft of the post 70 time period.

15.1.13 Following ADO - October 1962:

In the resulting direction to ASD on re-write of the PSPP, RTD was requested to prepare Technical Development Plan against a draft ADO. The ADO is the same one discussed in paragraph 15.1.8 above.

15.1.14 F2A Evaluation - October 1962:

As a result of the F2A study consideration to using the F2A as an interim for ADC was dropped. However, the possibility of supporting TAC missions was still up for consideration. As a result TAC was directed to provide ASD with their minimum requirements and ASD would evaluate the F2A to these requirements. As it turned out TAC's minimum requirements were specified in their QOR which reflected the requirements in SOR 206. Therefore, the need for an F2A evaluation by ASD has already been accomplished.

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON 25, D. C.

S.O.R. No. 206

AFORQ

DATE 12 June 1963

(U) SPECIFIC OPERATIONAL REQUIREMENT

FOR AN

AIRBORNE WARNING AND CONTROL (AWAC) SYSTEM

PURPOSE: This Specific Operational Requirement (SOR) documents the requirement for an automated Airborne Warning and Control System that is capable of operating autonomously or in conjunction with ground based control and warning environments in support of: (1) the mission of tactical air forces in the deployment and employment of suitably constituted strike forces for military operations worldwide and (2) to support the mission of Air Defense Command in providing for the Air Defense of the Continental United States.

1. OPERATIONAL MISSION. This system will be used by the tactical air forces and the Air Defense Command (ADC) to fulfill the following missions:

a. Tactical Air forces

(1) Provide quick reaction airborne warning and control for an operational overseas area; capable of searching for hostile air breathing vehicles, detecting, identifying, tracking, and directing friendly weapons against enemy threats. Assign and provide vectoring information for close air support, tactical air reconnaissance, troop and cargo drops, and air interdiction missions.

(2) Provide an automated capability to extend the tactical ground radar warning and control coverage over areas where detection and tracking by ground sites cannot be accomplished.

(3) Provide an ultra high frequency (UHF) voice and data communications radio relay station capability.

(4) Replace, augment, and/or provide backup facility for ground based Control and Reporting Center (CRC), or Control and Reporting Post (CRP).

b. Air Defense Command

(1) Provide increased surveillance capabilities for extension of the Continental United States (CONUS) radar against air breathing vehicles.

(2) Provide an automated airborne warning and control system capable of replacing a surface based surveillance and control facility in an emergency. This is to provide defense against air breathing vehicles and the control of air defense weapons.

(3) Provide an ultra high frequency (UHF) voice and data communications radio relay station capability.

(4) Provide an automated airborne control capability to utilize the full potential of current and future interceptors.

2. ENEMY EFFECTIVENESS ESTIMATES. Potential enemy capabilities are contained in the Hq USAF Specific Operational Requirement Intelligence Annex.

3. FRIENDLY ENVIRONMENT.

a. Tactical Air Forces. AWAC aircraft will be located on Tactical Air Command bases in the Continental United States readily available for deployment with Composite Air Strike Forces (CASF). AWAC aircraft will be located on Pacific Air Force bases immediately available to respond to area contingencies. AWAC aircraft may be located on other friendly bases overseas as necessary in response to contingency situations.

b. Air Defense Command. AWAC aircraft assigned to ADC would be strategically positioned at pre-selected bases within the U.S. The aircraft will man designated stations on a random basis within the North American Air Defense Command (NORAD) area of responsibility during peacetime. In time of war, these aircraft would be deployed to pre-selected stations as well as emergency replacement of those portions of the Continental Air Defense Systems no longer capable of performing their mission.

c. The AWAC System will be compatible with existing and programmed facilities, organization and concept of operation for each command within the proposed time frame, i.e., Continental Air Defense Warning and Control System 416L (SAGE 416L), Marine Tactical Data System (MTDS), Tactical Air Defense Warning and Control System 412L (TAC 412L), and the Backup Interceptor Warning and Control System 416M (BUIC).

4. CONCEPT OF OPERATION AND SUPPORT.

a. Tactical Air Operations

(1) The AWAC aircraft will be deployed around the world to any limited war or counterinsurgency (COIN) area where a quick reaction surveillance and weapon control environment is needed.

(2) There is a requirement for an airborne tactical surveillance/warning and control system for deployment to areas where extremely limited or no ground radar environment exists. The concept of this system is as follows:

(a) Initial Phase. Commencing with the deployment of the lead element of the strike force to the operational area, an airborne system must be available to control friendly aircraft enroute to the deployment base, provide air base control when no other is available, conduct early warning surveillance of the operational area to detect and identify unfriendly aircraft, direct intercept action to counter enemy air activity, and control friendly aircraft for offensive strike operations. This capability must be operational on a 24-hour basis until arrival and activation of a ground environment tactical warning and control system.

(b) Second Phase. This phase of the tactical warning and control operations begins with the installation and operation of a ground environment system. The ground environment may be composed of components of the 412L System or other similar tactical control systems. The AWAC system will be utilized to provide flexibility for extending the area radar coverage and for providing backup control capabilities to the ground radar system.

(c) Third Phase. In the event the conflict should escalate beyond the capabilities of the available forces, additional forces will be deployed into the area. The concept of warning and control would now envision the complete application of all available ground warning and control equipments augmented by the AWAC System.

(3) The AWAC aircraft will be used to augment and extend the ground radar warning and control coverage over areas where detection and tracking of low flying aircraft by ground environment sites cannot be accomplished.

(4) The AWAC aircraft can be located at sanctuary bases outside the area of conflict for immediate employment thereto as an Airborne Control and Reporting Center (ACRC) or Airborne Control and Reporting Post (ACRP).

(5) This AWAC system can provide air traffic control assistance to Composite Air Strike Forces (CASF) aircraft during deployment and air refueling operations and for takeoff and landing control at contingency bases during periods of marginal weather conditions.

(6) AWAC aircraft will be used in conjunction with Tactical Air Command/Strike Command operations and exercises.

b. Air Defense Operations

(1) AWAC aircraft will generally be deployed from bases around the perimeter of the Continental United States. Takeoff and return to home bases will be the normal mode of operation.

(2) Prime airbases with hard surface runways suitable for operation of high speed jet or turbo-prop aircraft will be available for these aircraft. Dispersal bases, adequate for interim operations, will be utilized to reduce the vulnerability of this system to enemy attacks.

(3) These aircraft will patrol designated areas within the NORAD area of responsibility to provide detection, identification and tracking of all air breathing vehicles within the capability of the airborne sensors.

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(4) For survivability of the AWAC fleet assigned to ADC, random manning of assigned stations, alert on home or dispersal base, and continuous dispersal will be utilized. To the extent practicable, maximum use will be made of existing ADC dispersal bases. Sufficient aircraft will be maintained on alert, capable of being launched with 10 minutes warning, to man the remaining assigned stations.

(5) After scrambling, the aircraft will maintain communication with the ground environment system. In cases where the aircraft may be deployed beyond the UHF communications horizon, high frequency (HF) radio communications will be maintained.

(6) During the deployment of the aircraft, while under the control of the ground based system, the aircraft will function as an extended surveillance and control station feeding target and interceptor track information back to ground environment system. Also, the aircraft will function as a relay for communication with interceptors operating beyond the UHF ground-to-air- radio horizon.

(7) If the ground control system is rendered inoperable, an AWAC aircraft previously designated as area control aircraft would then assume the responsibility for weapons assignment and interceptor vectoring. Information will be processed and commands transmitted to the interceptor bases for scramble and assignment. Weapons status will be received by the AWAC aircraft to facilitate the weapons control function. Rapid reconstruction of the air situation and performance of the identification function is vital to the AWAC system.

(8) Operation of the AWAC system may be performed at extended ranges from the ground surveillance and control system.

c. Logistics

(1) Maintenance Concept

(a) The standard Air Force policy of three levels of maintenance (organization, field and depot) will be employed for support of the Airborne Warning and Control System. Adherence to the policy of base self-sufficiency and maximum maintenance at the lowest level is

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required. The using command will be responsible for organization and field level maintenance and the accomplishment of depot level maintenance will be the responsibility of the Air Force Logistics Command (AFLC). AFLC will provide an organic maintenance capability in accordance with the Air Force vital weapon systems support policy. When an organic capability is not practicable, depot maintenance will be accomplished by contract utilizing existing contractor facilities. AFR 66-1, AFM 66-1 and AFM 65-110 will apply to this system.

(b) Maintainability is an equipment design parameter; therefore, the airborne warning and control system, subsystems, and aerospace ground equipment (AGE) will incorporate maintainability characteristics which will minimize the required maintenance effort, manpower and training, support and test equipment, special tools and facilities. The cost of achieving maintainability will be recognized as inherent in the overall production cost for delivery of an operationally effective weapon system. Military specification (Mil Spec) MIL-M-26512B and appropriate appendix(ces) will be applied to this system in accordance with AFR 66-99 and AFR 375-4. One of the qualitative goals of the maintainability program for this system is a minimum in-commission rate of 80%.

(c) Technical Orders (T.O.'s) will be maintenance oriented. Cost, quantity and elaborateness will be kept to an absolute minimum. T.O.'s will be prepared, numbered and distributed in the same format, system and procedure as is currently established in the standard Air Force T.O. system, AFR 66-7.

(d) Flight line test equipment will be of the minimum size, weight and complexity needed to verify system performance within specified limits on a go-no-go basis and to isolate malfunctions to line replaceable units (LRUs). Test points for attaching flight line test equipment to the weapon system must be readily accessible without disturbing the normal environment of the system under test. Only the number of test points needed consistent with installation engineering and testing requirements should be installed. Degree of automation required will be determined by use of operational analysis techniques, considering such factors as turn around time, operational employment and deployment, flexibility of application, quantitative and

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qualitative requirements. Integration of flight line test equipment components should be accomplished only to the extent that the systems to be checked are integrated in the weapon system. This will permit maximum flexibility of application at minimum cost under every planned mode of operation and maintenance support.

(e) Development of peculiar field and depot level electronic test equipment must be limited to the minimum essential to satisfy maintenance needs. Every effort must be made to ensure that existing or programmed techniques of the USAF Automatic Test Equipment (ATE) program are used to the maximum extent possible. (This program is designed to provide a standard field and depot level black box fault isolation and performance analysis capability using build block stimuli and a basic programmer comparator system). Compatibility of electronic systems and subsystems with the ATE system requires proper design of test points and use of existing, or if necessary, specifically provided adapters and stimuli.

(f) The following military specification will apply: MIL-D-9412D, MIL-M-26512B, MIL-E-5400, and MIL-R-27542.

(g) Although ground equipments must be kept to an absolute minimum, it is mandatory the personnel and equipment environmental conditions be considered. Air-conditioning and/or heating facilities operable from commercial or other ground power sources must be provided to assure reliable operation of the equipment and efficient operation of personnel. Environmental conditions for equipments and personnel in flight must receive equal consideration.

(2) Supply Concept

(a) Base stocks will be maintained at each base of aircraft assignment in support of the mission aircraft, installed ancillary equipment, and the AWAC equipment such as radar, radio, computer, display automatic switching and maintenance analyzers.

(b) Flyaway Kit (FAK)/Unit Mobility Kit (UMK) will be assembled in accordance with existing directives, and monitored by each aircraft assignment base supply officer. Kits will be kept in readiness for movement to dispersal bases to provide limited organization and field maintenance

during any contingency. Aircraft spares and components required to assemble these kits will be provided from War Reserve Materiel (WRM) assets. In addition, an in-flight maintenance kit must be provided to support the airborne maintenance concept.

(3) This proposed supply support program is based on the following assumptions:

(a) The home base of AWAC aircraft will be permanent Air Force Base with an operational base supply account which can accommodate 20 to 45 thousand line items in support of this system.

(b) The dispersal or deployment bases will not normally be required to maintain stocks in support of this system and will, therefore, require FAK/UMK augmentation.

(c) The installed AWAC equipment will incorporate a self-verification and trouble isolation capability to enable maintenance personnel to effect repair by module or component replacement.

5. LIMITATION OF PRESENT SYSTEMS

a. Available Airborne Equipment Limitation. The most critical requirement in the AWAC system is the development of a data acquisition/surveillance subsystem capable of Track-While-Scan (TWS) operation and providing height information on air breathing vehicles while operating over land. It has been determined that it is technically possible to develop this radar capability. The requirements of the other subsystems of AWAC can be achieved by utilizing equipments in being or by the application of proven technology.

b. Tactical Air Force Limitation.

(1) The present warning and control posture of the tactical air forces is for the establishment of a number of radar sites or locations within a ground environment. To do this, the equipment must be transported to and erected within the area of deployment. Critical limitations are: (a) the low altitude gaps in any ground radar coverage due to line-of-sight and terrain features, (b) rigid restrictions and requirements for siting ground based radar locations, (c) vulnerability to air attack, infiltration and sabotage, (d) excessive time

required for deployment and set-up in an operational area, (e) large airlift support required to move to overseas area, (f) numerous vehicles required to deploy from airbase/ airstrip upon arrival in overseas areas.

(2) The threat envisioned for the time period 1967-1977 could require deployment of tactical forces into areas lacking any form of warning and control facilities. The initial offensive and defensive capabilities of tactical Composite Air Strike Forces (CASF) would be seriously limited until adequate aircraft early warning and control systems were available. Under current deployment plans, fighter and reconnaissance aircraft would arrive up to approximately 52 hours before existing tactical warning and control systems could be deployed and set in operation.

(3) In certain cases of deployment within established unified areas, or when mobile warning and control equipment has been deployed, the spotty coverage provided by ground radars would still seriously limit the effectiveness of the deployed forces. In the mountainous areas of Africa, Southeast Asia and the Middle East, terrain screening can restrict radar detection range at low elevation angles to 10 miles over wide azimuth sectors. Under such conditions, the approaching aircraft is generally obscured in the ground clutter and is never acquired by the ground radar.

c. Air Defense Command System Limitations.

(1) The survivability of current surveillance, communications and control facilities is extremely limited when evaluated against the most probable threats.

(2) The present Airborne Early Warning and Control (AEW&C) Airborne Long Range Input (ALRI) fleet was developed to provide a seaward extension of the SAGE system, and is incapable of operating over land masses; therefore, the present AEW fleet cannot serve as emergency backup to prime radars, SAGE Direction Centers (DC) or Backup Interceptor Control Centers (BUIC NCC).

(3) The present RC/EC-121 aircraft fleet does not provide adequate platform altitudes, detection and tracking range, air defense weapon capability, data processing, and communications to cope with the threat. The age of the basic airframe and lack of AEW&C system growth capability deters further investment in the system.

SUPPORTING DOCUMENT NO. 53

6. OPERATIONAL PERFORMANCE

a. System. In accordance with the operational objectives, an airborne system is needed that will meet the following operational requirements:

(1) Quick reaction to permit rapid response to fast developing threats.

(2) Provide early warning and air surveilance information when operating over all surfaces.

(3) Direct and control defensive and offensive weapons when operating over all surfaces.

(4) Be immediately available to augment or replace an ADC BUIC NCC or a TAC CRC/CRP.

b. Subsystems. The subsystems which comprise AWAC System must be consistent with the following criteria:

(1) Aircraft.

(a) Remain onstation minimum of 8 hours when operating from base 1200 NM distant.

(b) Capable of maintaining a cruise altitude of 35,000 feet or higher.

(c) Cruise speed - subsonic at cruising altitudes.

(d) Scramble capability - aircraft AWAC system must be so designed that it can be airborne in 10 minutes from ground alert conditions with all essential equipment operating.

(e) The aircraft must have a self-starting capability, i.e., cartridge-pneumatic starters.

(2) Data Acquisition/Surveillance Radar

(a) 360^{o} azimuth coverage.

(b) Detection range of 200 NM on a one square meter ($1M^2$) target over land or water required with a 90% probability of detection (PD), 360 NM maximum range desired on $10M^2$ target with a 90% PD.

(c) Radar inputs will be of sufficient precision to provide:

1. System range accuracy of plus or minus 1 NM.

2. System azimuth accuracy of plus or minus 1^{o}.

3. System height accuracy of plus or minus 3000 feet at 200 NM.

(d) Detect and track targets from minimum discernable speed within the state-of-the-art to Mach 4.0.

(e) Detect air breathing airborne targets from surface to a minimum of 100,000 feet.

(f) Electronic Counter-Countermeasure (ECCM) within proven technology.

(g) Perform satisfactorily in and above adverse weather conditions, rain, etc., without significant reduction in design capabilities.

(3) Data Processing and Display

(a) Data Processing. The quantity of input information and the speed with which complex evaluations must be performed requires an automatic data processing capability. The airborne computer shall be able to perform high speed calculations and be capable of accepting, processing and transmitting information from sources internal and external to the airborne platform. It shall be capable of recording data for evaluation purposes and generating data for system exercise purposes. Facilities will be provided within each AWAC aircraft to permit installation of adaptation and program changes.

1. Computer.

a. This will be a general purpose, solid state digital computer which interconnects the AWAC subsystems. The computer will have these three minimum basic functions of surveillance, air battle control and guidance. It must have a maximum flexibility.

b. Surveillance Functions.

(1) Data link processing.

(2) Radar data processing.

(3) Radar control.

(4) Display computation.

(5) Navigation computation.

(6) Raid size and threat evaluation

c. Air Battle Control Functions:

(1) Interceptor data processing.

(2) Interceptor profiles.

(3) Vectoring command processing.

(4) Ground target data processing.

(5) Tactical fighter data processir

(6) Weapons status.

(7) Ground target status.

(8) Weather.

d. Guidance Functions:

(1) Trial intercepts computation.

(2) Intercept computation.

(3) Tactical strike computations.

(4) Command generation.

(5) Navigational computation for inertial navigation system.

e. The computer will also test and fault-find the appropriate portions of the AWAC System.

f. Buffer stroage, digital to analog and analog to digital data conversion units and such other components as are necessary to permit computer operation with other AWAC subsystems will be provided as required.

g. Communications Functions:

(1) Receive, store, encrypt or decrypt and/or print out on a high speed machine, messages transmitted or received in digital clear text or encrypted form from ground stations or airborne stations.

(b) Display.

1. Presentation of the data generated by the computers must be clearly and simply presented to provide a basis for immediate command decisions. Critical information in an intelligible and systematic manner must be provided, on a real time basis, that will permit comprehensive monitoring and control functions. Multi-purpose surveilance and weapons control consoles shall be employed to provide for maximum versatility. Displays shall be presented in color coded, symbolic, alpha numeric, andpictorial form to present the air situation to the system operators. These shall include, but not be limited to, tracks and track data, tracks destroyed, weapons locations, aircraft lost, predicted intercept points, geographical features, status displays, etc.

2. There will be an automatic projection type command display approximately 6 x 6 feet in size. This display shall be computer controlled with provisions for the manual insertion of data. This is to give the AWAC commander all the air defense data and/or tactical air control and support data that he will require to adequately perform his mission.

3. Multi-purpose surveillance and control consoles incorporating height readout.

(c) Capabilities.

1. Tracking (minimum 100 tracks).

2. Direct a minimum of 25 automatic and/or 9 manual intercepts.

SUPPORTING DOCUMENT NO. 53

3. Data display (weather, situation and force status).

(4) Navigation. Inertial navigation system with a minimum accuracy of .5 NM Bounded Error.

(5) Communications. The communication subsystem shall consist of those equipments necessary for communications with other airborne or ground facilities which provide tactical or air defense information. The computer input-output equipment shall have the capability of automatically receiving and transmitting digital data link information. In addition, the AWAC communications subsystem shall be capable of receiving and transmitting teletype and voice information.

(a) UHF and HF-SSB for air-to-air, air-to-ground, ground-to-air, cross-tell, guidance and command and warning, including voice, teletype and digital data.

(b) VHF/AM - Voice

(c) IFF/SIF, including airborne interrogation, must be compatible with IFF/SIF equipments in USAF, Navy, Army and Allied aircraft during the 1967-1977 time period.

(d) Intercom automatic switching.

(e) Audio recording and playback facility.

(f) VHF/FM - Army air/ground.

(g) All communications equipment must have ECCM features within proven technology.

(h) Cryptographic capability (minimum one channel teletype and one channel data).

(6) Ancillary.

(a) Power (ground and airborne).

(b) Air-conditioning.

(c) Crew bunks.

(d) In-flight kitchen.

(e) In-flight maintenance and supply area.

7. GENERAL CONSIDERATIONS.

a. The AWAC System should be designed on a functional modular basis. This will allow:

(1) The using agency to designate the functional capabilities in accordance with the anticipated tactical situation.

(2) The substitution and upgrading of subsystem capabilities in accordance with future requirements and state-of-the-art technical developments.

(3) Provide for partial AWAC System degradation rather than total system failure in the event of a subsystem outage.

b. Where appropriate, the design of each subsystem must reflect consideration of the following factors:

(1) Maintenance

(a) Maximum capability for in-flight maintenance.

(b) Plug-in unit replacement, tube replacement, and equipment evaluation while airborne.

(c) Spares and bench stock for 24 hours of operation.

(2) Operational Personnel.

(a) Capable of operating the equipment with instructions provided by the manufacturer.

(b) Capable of performing multi-function in-flight operations.

(c) Minimum number consistent with operation and maintenance requirements.

(3) Human Engineering.

(a) Proper ambient illumination in accordance with current recommended practice.

(b) Localized illumination control when required for:

1. Surveillance display control.

2. Status presentation, etc.

(c) Consoles and chairs designed to minimize operator fatigue.

(4) Environmental Control. Temperature and humidity consistent with human and equipment requirements.

(5) Inter-Communication.

(a) Intercom between functional sections.

(b) Senior Controller to have communications pre-empting capability.

(6) General.

(a) Personnel and Training:

1. A Personnel Subsystem will be defined and developed in accordance with AFR 30-8.

2. It is desirable to operate and maintain this system with Air Force personnel.

3. Simplicity and reliability of equipment and economy in personnel requirements must be stressed.

4. The Personnel Subsystem Technical Team in the System Project Office (SPO) will identify and detail those elements which will be developed in support of this system. The time phasing of these selected elements will be correlated with the overall development program.

SUPPORTING DOCUMENT NO. 53

5. Previously approved Qualitative and Quantitative Personnel Requirements Information (QQPRI) and training actions will be applied and utilized with regard to the system wherever applicable.

6. The various elements of the Personnel Subsystem (PSS) will be accomplished through maximum in-service effort wherever possible consistent with availability of qualified personnel.

7. Testing and evaluation of the PSS will be in accordance with AFR 80-14 and AFR 30-8.

8. SPECIAL INSTRUCTION

a. Operation in the manual mode is a required backup option.

b. Rack storage of required test equipment and modular replacement components should be in proximity to operating equipment or test panels requiring such items.

c. AWAC radar and communication frequencies, operating spectrum ranges. and band widths must be such that no significant interference or performance degradation will occur to friendly ground or airborne radar and communication systems, including 412L, MTDS, SAGE, etc.

d. Provide a plug-in capability for up-dating the computer while the aircraft is on ground alert.

e. The System Package Program (SPP) for this system will have a separate Communications Security Annex specifying in detail the approach for meeting the communications security requirements involving interface with other systems. This Annex will be coordinated with the National Security Agency (NSA).

9. AVAILABILITY. In operational quantities by 1967.

WILLIAM W. MOMYER
Major General, USAF
Director of Operational Requirements
DCS/Programs and Requirements

JOINT MESSAGEFORM

SECURITY CLASSIFICATION

SUPPORTING DOCUMENT NO. 54

SPACE BELOW RESERVED FOR COMMUNICATION CENTER

16Sep63 17 27

PRECEDENCE		TYPE MSG (Check)			ACCOUNTING SYMBOL	ORIG. OR REFERS TO	CLASSIFICATION OF REFERENCE
		BOOK	MULTI	SINGLE			
ACTION	ROUTINE						
INFO	ROUTINE		X		AF		

FROM: ADC ENT AFB COLO

SPECIAL INSTRUCTIONS

TO: CSAF

INFO TAC

SECRET ADLDC 4699

For USAF, AFORQ. Info TAC, DORQ-S. Subject: (U) Change to SOR 206. This message in three parts. Part I. References: (A) SOR 206 dated 12 Jun 63; (B) Continental Air Defense Study dated 10 May 63; (C) ADC secret message ADLPC 2635, dated 8 Jul 63; (D) ADC secret message ADLPC 2793 dated 24 Jul 63. Part II. The following recommended change to SOR 206 is in addition to those contained in references C and D. Change paragraph 6b(1)a to read: Remain on station minimum of 12 hours when operating from base 1000 NM distance. Part III: Rationale: The Continental Air Defense Study (CADS) required an on-station time for the AWACS aircraft to be minimum of 12 hours at range of 1000 miles. On this

DATE 16 | TIME 1452

MONTH SEP | YEAR 1963

WRITER

SYMBOL: ADLPC-AA

TYPED NAME AND TITLE (Signature, if required): TANDY A. WRIGHT, LT COL, USAF

PHONE 3263 | PAGE NR. 1 | NR. OF PAGES 2

SECURITY CLASSIFICATION: SECRET

RELEASER

SIGNATURE

TYPED (or stamped) NAME AND TITLE

PAUL T. PREUSS
Major General, USAF
DCS/Plans

DD FORM 1 MAY 58 173 REPLACES DD FORM 173, 1 OCT. 49, WHICH WILL BE USED UNTIL EXHAUSTED

JOINT MEMORANDUM - CONTINUATION SHEET

SECURITY CLASSIFICATION

SUPPORTING DOCUMENT NO. 54

DC ENT AFB COLO

basis the study recommended and costed 42 aircraft as a minimum to perform the air defense mission. SOR 206 requires an on-station time for the AWACS aircraft of 8 hours at a range of 1200 miles. The difference in on station time between the SOR and CADS for a 400Kts plus AWACS platform is approximately 3 hours. To obtain the same air defense capability with eight hours on station versus twelve hours on station would require additional AWACS platforms at a considerable increase in cost. (GP 4)

	PAGE NR	NR OF PAGES	SECURITY CLASSIFICATION	INITIALS
ADLPC-AA	2	2		FAW

DD FORM MAY 55 173-1

U. S. GOVERNMENT PRINTING OFFICE: 1962—644744

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SUPPORTING DOCUMENT NO. 55

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ADMIN (ADC) FORM 66A, MAR 63

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SUPPORTING DOCUMENT NO. 55

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SUPPORTING DOCUMENT NO. 55

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SUPPORTING DOCUMENT NO. 56

CONFIDENTIAL

[redacted]

PAGE 2 RUEADF 51 C O N F I D E N T I A L
CHANGES IN THE RADAR ENVIRONMENT AND
AS PRESENTLY DESIGNED AND PLANNED FO
ENVIRONMENT FROM BOTH AN OPERATIONAL
SYSTEMS NOW BEING MODIFIED SUCH AS E
ALTERNATIVES, THE IMPLEMENTATION OF
ENTAILS LIMITATIONS IN FUTURE SY
(D) COSTS ASSOCIATED WITH INTELLIGENT
ABOVE GUIDELINE CEILING FOR THE PRO
CEILING COSTS WERE UNATTACHED AND
PART IV. IT IS RECOMMENDED THAT ADC
(A) CONTINUE THE PROCUREMENT OF ALL
INITIAL BUIC II PRODUCTION EQUIPMENT
CONTROL AREAS, ATC, E-10 FOR CAT II
ANTICIPATED DECISION DATE IN DECEMBER
IMPROVED BUIC STUDY SUBMISSION, ST
TO AVOID THE EXPENSE OF BUILDING UP
AND TEST TEARS AT THIS TIME. (D) IF
TEMPORARY STORAGE OF SOME BUIC HARD
OF INSTALLATION AND TEST UNTIL A DE
II AND/OR IMPROVED BUIC CONFIGURATION. PART III. IT IS BELIEVED

PAGE 3 RUEADF 51 C O N F I D E N T I A L
THAT THE ABOVE PROPOSAL OR SOME SIM
COST OF THE PRESENT BUIC II PROGRAM
PART IV. WE PROPOSE TO MEET WITH YO
DISCUSS THIS SUBJECT IN DETAIL WITH
WHETHER OR NOT A JOINT PROGRAM CHANGE
ADCSO REQUESTED THAT THIS MESSAGE BE PASSED
GP-4.
DT 10/2034Z

CONFIDENTIAL

ADMIN (ADC) FORM 67A, APR 62

JOINT MESSAGEFORM

SECURITY CLASSIFICATION

SUPPORTING DOCUMENT NO. 57

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		BOOK	MULTI	SINGLE			
ACTION	ROUTINE						
INFO	ROUTINE		X		AF		

FROM: ADC ENT AFB COLO

SPECIAL INSTRUCTIONS

TO: ESD L G HANSCOM FLD MASS

INFO AFSC

ADC COMD CON DEF SYS OFC L G HANSCOM FLD MASS

SECRET ADLDC

For ESD, ESSG. Info: AFSC, SCSE; CCDSO, AD4SY. Subj: (U) BUIC II and Improved BUIC Programs. Reference ESD confidential message ESSG 3-19-60-E dated 19 Mar 64. This message in four parts. Part I. BUIC II as originally programmed was a backup to a 22 SAGE DC configuration. In this configuration BUIC was actually a Mode three operation with SAGE retaining both Mode one and Mode two. The FY 64 directed phase outs resulted in elimination of Mode two in some areas. We are now faced with a further reduction in FY 66 which will virtually eliminate the Mode two capability throughout the environment. Part II. There is no question what-

DATE 24 TIME 2300Z

MONTH MAR YEAR 1964

WRITER: SYMBOL ADLPC-A

TYPED NAME AND TITLE (Signature, if required) R S WESTERMAN, Lt Col, USAF

PHONE 3263 OFFICE SYMBOL NR. 1 PAGES 2

SECURITY CLASSIFICATION SECRET

RELEASER: SIGNATURE

TYPED (or stamped) NAME AND TITLE

LEW T. PLEUGER
Major General, USAF
DCS/Plans

DD FORM 1 MAY 58 173 REPLACES DD FORM 173, 1 OCT 49, WHICH WILL BE USED UNTIL EXHAUSTED

LPC 2142

JOINT MESSAGEFORM - CONTINUATION SHEET

SECURITY CLASSIFICATION

SUPPORTING DOCUMENT NO. 57

FROM:

ADC ENT AFB COLO

SECRET

soever that the current manual backup is woefully inadequate. Similarly the shortcomings of BUIC II and the need for an Improved BUIC are recognized. However, even though BUIC II falls short of the desired capability it is immeasurably better than the existing manual backup. Part III. The proposal contained in your message was considered in July 1963 prior to commitment for the second BUIC II increment buy. It was rejected primarily due to pending PCP action for Improved BUIC which as you know was deferred. Part IV. In view of the directed reductions in the present environment and the uncertainty of the Improved BUIC program the degradation in operational capability that would result from your proposal is unacceptable at this time. (GP 4)

SYMBOL	PAGE NR	NR OF PAGES	SECURITY CLASSIFICATION	INITIALS
ADLPC-A	1	2	SECRET	

DD FORM 1 MAY 55 173-1

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BUIC

SUPPORTING DOCUMENT NO. 58

22 JUN 64 23 172

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		BOOK	MULTI	SINGLE			
ACTION	ROUTINE						
INFO	ROUTINE		X		AF		

SPECIAL INSTRUCTIONS

FROM: ADC ENT AFB COLO

TO: ESD L G HANSCOM FLD MASS

INFO NORAD

ADC COMD CON DEF SYS OFC L G HANSCOM FLD MASS

AFSC

CONFIDENTIAL NOFORN EXCEPT CANADA ADLDC 1449

or ESD, ESSG. Info: NORAD, NEEC; CCDSO, AD4SY-Z; AFSC, SCSE. Subject: (U) Proposed BUIC II Implementation Schedule. This message in three parts. Part I. The proposed BUIC II Implementation Schedule forwarded to this Headquarters by your confidential letter of 17 Apr 64, reflects a six months slippage in the completion date of the BUIC II Program, (1 March 1966 to 1 Sep 1966). This makes the third time that this program has slipped. Such slippages are not acceptable to Headquarters ADC. Continual delays in the implementation of the BUIC Program makes it virtually impossible for this Command

DATE 29 | TIME 2145Z

MONTH APR | YEAR 1964

WRITER

SYMBOL: ADLPC-AC

TYPED NAME AND TITLE (Signature, if required): J. E. DEAL, LT COL, USAF

PHONE 3263 | NR. 1 | NR. OF PAGES 2

SECURITY CLASSIFICATION

RELEASER

SIGNATURE

TYPED (or stamped) NAME AND TITLE: J. O. BECKWITH, COL, USAF, Actg Asst DCS/Plans

DD FORM 1 MAY 58 173 REPLACES DD FORM 173, 1 OCT 48, WHICH WILL BE USED UNTIL EXHAUSTED

JOINT MESSAGEFORM - CONTINUATION SHEET | SECURITY CLASSIFICATION

FROM: ENT AFB COLO | CONFIDENTIAL | SUPPORTING DOCUMENT NO. 58

to plan a suitable command and control posture to counteract the air breathing threat. To further complicate the situation additional reduction in the SAGE environment has been directed. Part II. It is our understanding that the equipment manufacturer can return to the equipment delivery dates indicated on the 15 January 1964 BUIC Schedule by approximately the 16th unit. Your proposed schedule does not reflect this. It is requested that the possibility of the equipment manufacturer returning to the 15 Jan 64 delivery dates be fully explored and that every effort be made to return to the FOC of the BUIC System to that indicated in the 15 Jan 64 schedule. art III. Unless this improvement can be accomplished, this Hq cannot agree with the changes in installation priorities reflected. This message has NORAD concurrence. (GP 4)

	PAGE NR	NR OF PAGES	SECURITY CLASSIFICATION	INITIALS
ADLPC-AC	2	2		JFD

DD. FORM MAY 54 173-1

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SUPPORTING DOCUMENT NO. 59

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		BOOK	MULTI	SINGLE			
ACTION	ROUTINE						
INFO	ROUTINE		X		AF		

FROM: ADC ENT AFB COLO

TO: CSAF

INFO: ESD LG HANSCOM FLD MASS

ADC COMD CON DEF SYS OFC LG HANSCOM FLD MASS

NORAD

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DATE: 27 | TIME: 1455Z

MONTH: MAY | YEAR: 1964

CONFIDENTIAL/NOFORN EXCEPT CANADA/ADLDC 1486

Action CSAF AFXOPN. Info ESD ESSG; CCDSO AD4SY-Z; NORAD ADC. Subject: (U) Proposed BUIC Implementation Schedules. The contractor for the AN/GSA-51 Radar Course Directing Group for BUIC Phase II has informed the 416M SPO that the equipment for the first NCC, Z-10 North Truro, Mass., will not be delivered until 15 August 1964 and that there will be a similar extended delivery for the first 16 pieces of equipment. Because of this, this Headquarters is of the opinion that the schedule for the first 16 units, as proposed by the 416M SPO, will have to be accepted. To preclude needless disruption of the

WRITER

SYMBOL: ADLPC-A

TYPED NAME AND TITLE (Signature, if required): Lt Col J F Deal

PHONE: 3263 | PAGE NR. 1 | NR. OF PAGES 2

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RELEASER

SIGNATURE

TYPED (or stamped) NAME AND TITLE

PAUL T. PREUSS
Major General, USAF
DCS/Plans

DD FORM 1 MAY 55 173 REPLACES DD FORM 173, 1 OCT. 49, WHICH WILL BE USED UNTIL EXHAUSTED

JOINT MESSAGEFORM - CONTINUATION SHEET | SECURITY CLASSIFICATION CONFIDENTIAL

FROM: ADC ENT AFB COLO

SUPPORTING DOCUMENT NO. 59

manual backup to SAGE, Phase I BUIC, this Headquarters requests approval of the following schedule for the first 14 operational sites: Z-10 - 15 July 1965; Z-198 - 1 Oct 1965; Z-54 - 1 September 1965; Z-16 - 15 September 1965; Z-61 - 15 September 1965; Z-56 - 15 October 1965; Z-65 - 15 October 1965; Z-27 - 1 December 1965; Z-46 - 1 January 1966; Z-37 - 1 January 1966; Z-76 - 1 January 1966; Z-81 - 1 February 1966; Z-132 - 1 February 1966; Z-69 - 1 February 1966. (NOTE: Z-69 has been switched with Z-115.) Times required for the installation of the GSA-51, program installation and checkout, implementation testing, remain approximately the same as indicated on the 15 January 1964 edule. An expeditious reply is requested. Gp 4.

ADLPC-A	PAGE NR 2	NR OF PAGES 2	SECURITY CLASSIFICATION CONFIDENTIAL	INITIALS JFD

DD FORM MAY 55 173-1

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SUPPORTING DOCUMENT NO. 60

Buic

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SECURITY CLASSIFICATION: CONFIDENTIAL

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SUPPORTING DOCUMENT NO. 61

BUIC

PRECEDENCE		TYPE MSG (Check)			ACCOUNTING SYMBOL	ORIG. OR REFERS TO	CLASSIFICATION OF REFERENCE
		BOOK	MULTI	SINGLE			
ACTION	ROUTINE						
INFO	ROUTINE		X		AF		

FROM:
ADC ENT AFB COLO

SPECIAL INSTRUCTIONS

TO: ESD L G HANSCOM FLD MASS

INFO ADC COMD CON DEF SYS OFC L G HANSCOM FLD MASS

AFSC

CSAF

CONFIDENTIAL ADLPC 2436

For ESD, ESSG. Info CCDSO, AD4SY-Z; AFSC, SCCP; USAF, AFXOPN. Subject: (U) 416M BUIC Master System Schedule. Reference your confidential message ESSG 7-23-49-E, 23 July 64. This Hq approves in principle the proposed BUIC II schedule with an initial operational date of 31 Aug 65 and a final system operational date of 30 June 66. However, the comments contained in our confidential message ADLDC 1449, dated 29 April 1964 are still valid. (GP 4)

DATE	TIME
30	1525
MONTH	YEAR
JUL	1964

WRITER

SYMBOL: ADLPC-AC

TYPED NAME AND TITLE (Signature, if required): JOHN F. DEAL, LT COL, USAF

PHONE: 3263 | PAGE NR. 1 | NR. OF PAGES 1

SECURITY CLASSIFICATION: CONFID

RELEASER

SIGNATURE

TYPED (or stamped) NAME AND TITLE:
GALEN B. PRICE
Colonel, USAF
Director, Aerospace
Command and Control

DD FORM 1 MAY 55 173 REPLACES DD FORM 173, 1 OCT. 48, WHICH WILL BE USED UNTIL EXHAUSTED

JOINT MESSAGEFORM

SECURITY CLASSIFICATION

SUPPORTING DOCUMENT NO. 62

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BUIC

PRECEDENCE		TYPE MSG (Check)			ACCOUNTING SYMBOL	ORIG. OR REFERS TO	CLASSIFICATION OF REFERENCE
		BOOK	MULTI	SINGLE			
ACTION	ROUTINE				AF		
INFO							

FROM: ADC ENT AFB COLO

SPECIAL INSTRUCTIONS

TO: ADC COMD CON DEF SYS OFC L G HANSCOM FLD MASS

CONFIDENTIAL ADLDC 24/1C.

For AD4CH. Subject: (U) 416M BUIC Master System Schedule. On 24 July 64 this Headquarters was informed for the fourth time that the BUIC II implementation schedule had slipped again. In each instance it has been due to the inability of the Burroughs Corp to deliver the equipment. This office views with concern the continual slippages being experienced in this program. On 29 April 64, ADC advised ESD that such slippages were not acceptable because of their impact upon the programming activities associated with BUIC II. Repeated delays in the implementation of the BUIC Program forces this command to operate with an inferior manual backup command and control system. In addition, further slippage in this program will have a direct impact on the orderly phase in of the Primary Auto-

DATE 3 | TIME 2150Z

MONTH [illegible] | YEAR 1964

SYMBOL	SIGNATURE
ADLPC-AC	
TYPED NAME AND TITLE (Signature, if required)	TYPED (or stamped) NAME AND TITLE
JOHN F. DEAL, LT COL, USAF	J. O. LECKWITH COL, USAF Actg Asst DCS/[illegible]
PHONE 3263	Msg NR. 1	NR. OF PAGES
SECURITY CLASSIFICATION: CONFIDENTIAL	

DD FORM 1 MAY 58 173 REPLACES DD FORM 173, 1 OCT. 49, WHICH WILL BE USED UNTIL EXHAUSTED

JOINT MESSAGEFORM - CONTINUATION SHEET

SECURITY CLASSIFICATION CONFIDENTIAL

ADC ENT AFB COLO

SUPPORTING DOCUMENT NO. 62

...ted Ground Environment (PAGE) now being considered by the Secretary of Defense and the orderly phase out of SAGE. In an attempt to preclude further slippage in the BUIC II program, request you take whatever action you deem appropriate to insure that SPO actions are consistent with ADC's urgent requirements for an early acquisition of a fully operational BUIC II system. Further request, if an appropriate occasion arises, that you discuss with Gen O'Neal this command's concern over the repeated delays which have occurred in the BUIC II schedule. (GP 4)

ADLPC-AC	PAGE NR	NR OF PAGES	SECURITY CLASSIFICATION	INITIALS
			CONFIDENTIAL	JFD

DD FORM 1 MAY 55 173-1

U. S. GOVERNMENT PRINTING OFFICE: 1952—944744

SUPPORTING DOCUMENT NO. 63

SECRET

FM [illegible]
TO ENGALEAADC ENT AFB COLO
INFO RUNGALE/NORAD ENT AFB COLO
UE

S E C R E T IKON AFVOPN 59618
SUBJECT IS LONG RANGE RADAR REQUIREMENTS. REFERENCE AFVOPN 58G [illegible] 72497 DTD 25 NOV 63 AND AFOAP 59377 DTD 10 JAN 64. SEVERAL AIR STAFF ACTIONS CONCERNING CURRENT PROGRAMS ARE AWAITING YOUR STUDY ON THE SELECTION OF LONG RANGE RADARS TO BE RETAINED IN THE 1970 TIME PERIOD. OF IMMEDIATE CONCERN IS THE BMEWS PROGRAM. IN THAT WE ANTICIPATE A POSSIBLE UNPRODUCTIVE EXPENDITURE OF MILITARY CONSTRUCTION FUNDS AS WELL AS SLIPPAGE UNLESS YOUR SELECTIONS ARE COMPLETED WITHIN THE NEXT THIRTY DAYS. FURTHER EXPENDITURE OF MCP FUNDS FOR SEVERAL RADAR STATIONS ARE BEING HELD IN ABEYANCE PENDING

PAGE 2 RUEANO 62 S E C R E T
YOUR FINALIZED SELECTION. ALSO OF CONCERN IS THE NECESSITY TO RESOLVE THE DOD/FAA ENVIRONMENT IN CONSONANCE WITH DIRECTIVE CONTAINED IN SECDEF FORMAT B FOR PROGRAM ELEMENT- SURVEILLANCE, WARNING AND CONTROL DTD 27 NOV 63. PLEASE ADVISE CURRENT STATUS OF STUDY BY 6 FEB 64. SCP-4.
EX
1301

Ref. Secret JAG # 232 18 Jan 64 (0-964)

15

NNNN

SECRET

JOINT MESSAGEFORM

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SUPPORTING DOCUMENT NO. 64

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CONFIDENTIAL 75 JAN 22 13, Long Range Radars

	PRECEDENCE	TYPE MSG (Check)			ACCOUNTING SYMBOL	ORIG. OR REFERS TO	CLASSIFICATION OF REFERENCE
		BOOK	MULTI	SINGLE			
ACTION	ROUTINE						
INFO	ROUTINE		X		AF		

FROM: ADC ENT AFB COLO

SPECIAL INSTRUCTIONS

TO: CSAF

INFO NORAD

CONFIDENTIAL NOFORN EXCEPT CANADA ADLDC 432

For USAF, AFXOPN. INFO: NORAD, NPPP. Subject: (U) Long Range Radar Requirements. This message in two parts. Part I. This msg is in response to your AFXOPN 89612, 3 Feb 64. Current status of study as follows: A draft NORAD coverage criteria was received on 6 Feb with the statement "This criteria will be utilized at the present time for study purposes only and will not be released to other agencies until such time as it is formally approved by NORAD". We are attempting to get relief from this restriction to permit discussion with FAA. Part II. Using the above criteria, we are in process of selecting optimum set of radars. By present plans we will present to NORAD our list of radars by

DATE 7 | TIME 2302
MONTH FEB | YEAR 1964

WRITER

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PHONE: 3263 | PAGE NR: 1 | NR OF PAGES: 2

SECURITY CLASSIFICATION:

RELEASER

SIGNATURE:

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Asst DCS/Plans

DD FORM 1 MAY 58 173

REPLACES DD FORM 173, 1 OCT. 48, WHICH WILL BE USED UNTIL EXHAUSTED

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SUPPORTING DOCUMENT NO. 64

OC ENT AFB COLO

21 Feb for their concurrence. Our goal for submission to USAF of the ADC/NORAD "hard core" list is 29 Feb. If the NORAD restriction on release of information is lifted, our list will be discussed with the FAA. It is extremely doubtful, however, that an agreed FAA/military selection can be achieved by 29 Feb. An attempt will be made to identify radars of no conflict and those with potential conflict. (GP 4)

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ADLPC-AC	2	2		JRL

DD FORM MAY 58 173-1

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SUPPORTING DOCUMENT NO. 65

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ADMIN (ADC) FORM 67A, APR 62

JOINT MESSAGEFORM

SECURITY CLASSIFICATION: SECRET

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SUPPORTING DOCUMENT NO. 60

Buic

30 Mar 64 17 21z

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ACTION	ROUTINE		X		AF		
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FROM: ADC ENT AFB COLO

SPECIAL INSTRUCTIONS

TO: ESD L G HANSCOM FLD MASS

INFO NORAD

CANAIRHED OTTAWA CANADA

ADC COMD CON DEF SYS OFC L G HANSCOM FLD MASS

SECRET NOFORN EXCEPT CANADA ADLPC 1/c 2

For RCAF CANUSECURITY applies. For ESD, ESL. Info: NORAD, NPPP; RCAF, AMTS, DADSI; CCDSO, AD4SY. Subj: (U) Improved BUIC. Reference message ESD, ESL 24-3-3. This message in six parts. Part I. The following answers are furnished in response to questions in referenced message. (1) The time frame for all options is from FY 1967 to FY 1969 with IOC of the first sector achieved not later than Dec 1969. Each option should be budgeted over a minimum interval of three years to avoid excess peaking in acquisition costs. (2) Installation priorities, operational sequence of Improved

DATE 30 | TIME 1515Z | MONTH MAR | YEAR 1964

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PHONE 3263 | PAGE NR. 1 | NR. OF PAGES

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[illegible]
Command and Control

DD FORM 1 MAY 58 173 REPLACES DD FORM 173, 1 OCT. 49, WHICH WILL BE USED UNTIL EXHAUSTED

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SUPPORTING DOCUMENT NO. 66

FROM: ADC ENT AFB COLO

BUIC phase in and SAGE phase down for each option with estimated fund reduction by FY quarters will be provided within the next two weeks. The above information will also include system configuration, location of region CCs and sector NCCs and radar ties. (3) IOC is defined as the first operational sector, FOC as the first operational region. (4) Internal communications requirements will be provided by 1 Apr 64. (5)(A) A separate data circuit is not required for COC weather inputs. (B) Teletype inputs from the DEW Line will terminate at NORAD COC/ ALCOP, Region CCs and the sector NCC/CPs selected as alternate CCs. (C) A console position will not be dedicated solely to the RICMO. This function will be combined with the air surveillance officer position. Maintenance management procedures will be in accordance with AFM 66-1. Field notes on maintenance programs will be used on an interim basis until a system maintenance Technical Order can be developed. The Maintenance Coordination Center (MCC) will require a device similar to either the BUIC Flexowriter or high speed printer to monitor RTQC, and a situation display similar to the display for the Air Surveillance officer. A minimum of three RAPPIs will be required for each Improved BUIC site. In addition a method of selecting and/or isolating I/[illegible] inputs for RAPPI display is required. A patch panel

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FROM: C ENT AFB COLO

SUPPORTING DOCUMENT NO. 66

similar to the DPP 1010 now used in SAGE would suffice. Monitoring for automatic detection of outages will be the responsibility of MCC. ADC's objective is to provide a complete organic maintenance and supply support capability for Improved BUIC at each facility ~~on the date that~~ STARTING 6 MONTHS AFTER GO implementation testing for that facility is complete. (D) The requirement for secure conferencing capability will be eliminated. If acquired, this will be a separate system requirement and should not be costed to Improved BUIC. (E) There is no requirement for the region CC to have the capability to function as an NCC/CP. (F) SARAH operation was inadvertently omitted from paragraph 5.2.2.2(3). This paragraph will be revised to provide for all modes of SARAH operation and the manual mode. Part II. (1) The tentative plan for the FY 66 SAGE phase-down cannot be furnished at this time. However, the tentative Improved BUIC sector configuration provided on 2 March 1964 is considered a suitable basis for preliminary planning. (2) The hard core radar list will be hand carried to your office by Lt Col John Deal on 1 April 1964. (3) At the present time there is not basis for estimating total communications requirements for Improved BUIC. AT&T is presently conducting an extensive engineering study to ascertain communication

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FROM:

JC ENT AFB COLO

construction and trunking requirements to support BUIC Phase II. This study will be available to Hq ADC not later than 1 May 64. The BUIC Phase II figures can be extrapolated to ascertain approximate Improved BUIC communications requirements and costs. Part III. Members of working group panels will be as follows: Facilities - Mr. Kenneth P. Lord, Hq ADC, will be present on 6 Apr 64; Maj Lumens, CCDSO will provide necessary inputs during the week of 30 March; Logistics - Lt Col Fred P. Selin, CCDSO will be the ADC panel member; Financial - Mr. B.E. Tillerson, Hq ADC will be present on 30 March. Lt Col T Kirk, CCDSO will provide operational concept inputs or Hq ADC during the week of 30 March. Part IV. The name quote "PAGE" unquote (Primary Automated Ground Environment) has been tentatively selected as a replacement for the term "Improved BUIC" when referencing current study. Part V. Request CCDSO be made information addressee on all future correspondence pertaining to the PAGE System. Part VI. The information contained in this message updates Section 5 (PSPP) for options submitted. This office will continue to update operational requirements as required. (GP 4)

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ADMIN (ADC) FORM 67A, MAR 63

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INFO	ROUTINE		X		AF		

FROM: ADC ENT AFB COLO

SPECIAL INSTRUCTIONS

TO: ADC COMD CON DEF SYS OFC L G HANSCOM FLD MASS

INFO CSAF

NORAD

AFSC

CONF NOFORN EXCEPT CANADA ADLPC 03850

For AD4SY-Z, CCDSO. Info USAF, AFSPDEM, AFOCELB, AFXOP; AFSC, SCSEW; NORAD, NOOP-E, NPAP. Subject: (U) Site Selections and Operational Priority for BUIC II and BUIC III. Reference ESD confidential message ESSG 22358, 27 Nov 64. This message in three parts. Part I. The following site selections by operational priority for 14 BUIC IIs and 19 BUIC IIIs are submitted: BUIC II - Z-10, Z-198, Z-54, Z-16, Z-61, Z-56, Z-65, Z-27, Z-180, Z-46, Z-76, Z-69, Z-25, Z-40. BUIC III - Z-50, Z-108, Z-115, C-8, Z-76, C-5, C-153, Z-25, Z-132, Z-180, Z-61, Z-81, Z-10, Z-56, Z-16, Z-27, Z-40, Z-69, Z-65. Part II. Request CCDSO provide this BUIC II and BUIC III site

DATE	TIME
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MONTH	YEAR
DEC	1964

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Dep Dir, Aerospace
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AF-2643

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selection and operational priority list to ESD. Part III. This site selection and operational priority for BUIC II and BUIC III has NORAD concurrence. (GP 4)

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FROM: ADC

SPECIAL INSTRUCTIONS

TO: ADC SP WPNS OFC KIRTLAND AFB NMEX

INFO: JOINT TASK FORCE II SANDIA BASE NMEX

SECRET ADLPC 31634 MAY 65

ADC Special Weapons Office for Col Posey. Info for Joint Task Force II. Subject: (U) BUIC and AWACS. Per your request, be advised that a Back-Up Interceptor Control (BUIC) System is programmed as a Semi-Automatic Computerized Back-Up Control System to SAGE. BUIC I is a manual back-up capability maintained in the field today; BUIC II will involve a [redacted] computer, with displays, installed at 13 operational radar sites in the U.S. This system will net 5 radars; will handle 40 simultaneous tracks including the control of 10 simultaneous intercepts. This capability will be operational in the U.S. by 1 Apr 66, netting all radars in Southern Canada and providing coverage 250-300 miles deep along the West Coast, South of the Northern U.S. border for 250-300 miles and South along the East Coast to approximately Jacksonville, Florida in

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DATE 12 TIME 1522

MONTH MAY YEAR 1965

WRITER

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PHONE 3263 PAGE NR. 1 NR. OF PAGES 2

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CC-3036

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FROM: ADC

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the same depth. By May 1969, BUIC III will be in operation over the same area, plus covering the Florida area and Gulf Coast as far west as New Orleans. BUIC III will be installed at 20 sites; will net up to 10 radars and have twice the capacity of BUIC II. AWAC is now in the development stage and two AWAC prototypes will be available by 1969. While not yet programmed, an AWAC fleet could be operational by FY-72. GP 4

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