[redacted]

L. H. BUSS
Director of Command History

norad/conad

HISTORICAL SUMMARY

(UNCLASSIFIED)

JANUARY — JUNE 1960

[redacted]

at-64

DEC 14 2006

MEMORANDUM FOR HQ NORAD/USNORTHCOM/HO

FROM: HQ NORAD/J3

SUBJECT: Declassification Review of Histories

1. The NORAD/CONAD histories for the periods specified in your 30 October 2006 memo have been reviewed and are now declassified except for the following sections below. The justification for retaining the classification follows each description.

a. NORAD/CONAD Historical Summary, July—December 1958, page 65. Document still has information based on today's concepts tactics and objectives.

b. NORAD/CONAD Historical Summary, July—December 1958, pages 110-111. Document describes readiness conditions that are still valid today.

c. NORAD/CONAD Historical Summary, January—June 1959, pages 67-71. Document describes some current rules of engagement.

d. NORAD/CONAD Historical Summary, January—June 1959, pages 73 and 74. Document describes some current tactics and rules of engagement.

e. NORAD/CONAD Historical Summary, July—December 1959, pages 55-58. Document describes some current capabilities and procedures.

f. NORAD/CONAD Historical Summary, July—December 1959, pages 59-61. Document describes current rules of engagement.

g. NORAD/CONAD Historical Summary, January—June 1960, pages 37-39. Document describes readiness conditions that are still valid today.

h. NORAD/CONAD Historical Summary, January—June 1961, pages 23-26. Document describes some current tactics and rules of engagement and also could reveal information that would impact the application of state of the art technology.

i. NORAD/CONAD Historical Summary, January—June 1961, page 37. Document describes information that would impact the application of state of the art technology.

j. NORAD/CONAD Historical Summary, January—June 1962, pages 35 and 36. Document describes information that would seriously and demonstrably impair relations between the United States and a foreign government.

k. NORAD/CONAD Historical Summary, July—December 1962, pages 47 and 48. Document describes current tactics.

l. NORAD/CONAD Historical Summary, July—December 1963, pages 59 and 60. N/J3 does not have the authority to declassify these pages. Recommend deferring to NSA for resolution.

m. NORAD/CONAD Historical Summary, July—December 1963, pages 63-65. Document describes current capabilities and tactics.

n. NORAD/CONAD Historical Summary, January—June 1964, pages 57-

58. Document describes capabilities, limitations and deficiencies of warning systems.

o. CONAD Command History, 1968, pages 111 and 112. Document describes current limitations, tactics, and capabilities.

p. CONAD Command History, 1968, page 117. Document reveals current vulnerabilities of systems or projects relating to the national security.

q. CONAD Command History, 1968, pages 171-173. N/J3 doesn't have the technical expertise to evaluate the classification of Chapter VII, Communications. Please refer to N-NC/J6.

2. The POC for this review is Mr. Michael Allen, 4-3607.

BRETT D. CAIRNS
Major-General, CF
Director of Operations

NORTH AMERICAN AEROSPACE DEFENSE COMMAND

22 APR 1997

MEMORANDUM FOR N/SPHO

FROM: N/J3

SUBJECT: Declassification Review of NORAD/CONAD Histories

1. The following NORAD/CONAD histories were reviewed for downgrading/declassification:

a. NORAD/CONAD History, Jan-Jun 60: Document is downgraded to Unclassified except for pages 37-39, topics "Uniform Readiness Questions," and "Alaskan Readiness Conditions." Remains Confidential/Rel CANUS.

b. NORAD/CONAD History, Jul-Dec 60: Document is downgraded to Unclassified except pages 45-50, topics "Background," Site I, Thule, Greenland," Central Computer and Display Facility," Site 2, Clear, Alaska," Site 3, Fylingdales, England," and "Need for an Improved Warning System." Remains Confidential/Rel CANUS.

c. NORAD/CONAD History, Jan-Jun 64: Document is downgraded to Unclassified except:

(1) Page 57, para entitled "Background on Tracker for Site II" through end of paragraph. Remains Secret/Rel CANUS.

(2) Page 57, last para starting with "*(S) BMEWS..." through end of para "...65 degrees." Remains Secret/Rel CANUS.

d. NORAD/CONAD History, Jan-Jun 65: Entire document is downgraded to Unclassified.

e. NORAD/CONAD History, Jul-Dec 65: Entire document is downgraded to Unclassified.

2. Please refer any questions to Maj Hodges, N/J3WS, 4-6920.

G. KEITH McDONALD
Major-General, CF
Director of Operations

NORTH AMERICAN AEROSPACE DEFENSE COMMAND
AND
UNITED STATES SPACE COMMAND

NORAD/USSPACECOM
Office of the Joint Secretary
250 S. Peterson Blvd Ste 116
Peterson AFB CO 80914-3010

14 APR 1997

Mr. Hans M. Kristensen
6435 Hazel Avenue
Richmond, CA 94805

Dear Mr. Kristensen

This correspondence is in response to your requests to review, declassify and release five separate NORAD/CONAD histories, each of which are over 30 years old.

For your information, Title 5 United States Code (U.S.C.)., Section 552, the Freedom of Information Act (FOIA), is a United States (US) statue and is only applicable to US agencies as defined in Title 5 U.S.C., sections 551 and 552. NORAD is a binational command established by 33 United States Treaties, (UST) 1277, subject to control of both Canadian and US Government agencies as defined in the Act and consequently is not subject to the US FOIA.

However, it is our policy under NORAD Instruction 35-17, Processing Requests for NORAD Records, to release records or information where documents or information are not security classified or considered "NORAD Sensitive" and are cost efficient to provide. In this case, we are pleased to provide you with the five attached declassified NORAD/CONAD historical summaries. The only items still considered security classified were pages 45-50 of the Jul-Dec 60 history; pages 57 and 58 in the Jan-Jun 64 history; and pages 37, 38 and 39 in the Jan-Jun 60 history, which have been extracted and/or blocked-out accordingly. We hope these histories help you with your research efforts as a DoD Category Two (educational/news media) writer.

If you have any further questions and/or comments, please contact Major Robin Alford, Deputy Director of NORAD Public Affairs at (719) 554-5816 or Mr. Scott Johnson, Chief, Products/Plans Branch, at extension 3714.

Thank you for your continuing interest in the North American Aerospace Defense Command.

Sincerely

RODNEY S. LUSEY
Colonel, USA
Joint Secretary

5 Attachments:
NORAD/CONAD Histories
(less classified pages noted)

cc:
NJ3
HO

NORTH AMERICAN AEROSPACE DEFENSE COMMAND

UNCLASSIFIED

12 AUG 1996

MEMORANDUM FOR HQ NORAD/HO

FROM: HQ NORAD/J3

SUBJECT: History Declassification Review

1. A review of the Historical Summary, Jan - Jun 1960 (Tab 2) has been completed. Items bracketed on pages 37-39 are still classified. All other items can be downgraded to unclassified.

2. Refer any questions to my Historical Officer, Major Hodges, N/J3WS at 4-6920.

K McDonald.

G. KEITH McDONALD,
Major-General, CF
Director of Operations

NORTH AMERICAN AIR DEFENSE COMMAND and CONTINENTAL AIR DEFENSE COMMAND

HISTORICAL SUMMARY

JANUARY — JUNE 1960

Directorate of Command History
Office of Information
Headquarters NORAD·CONAD

~~CONFIDENTIAL~~

PREFACE

This historical summary is one of a series of semiannual reports on the North American Air Defense Command and Continental Air Defense Command. Its purpose is two-fold. First, it provides a ready reference to NORAD and CONAD activities by bringing together in a single document the key data found in several hundred documents. Secondly, it records for all time the activities of NORAD and CONAD during the period of the report.

The source materials from which this history was written are on file in the historical office and are available for use by all authorized persons. For security reasons, a list of the documents is not included with this history.

To provide a brief view of the whole history of NORAD/CONAD for the period of this report, a ten page digest is included as the last chapter.

Colorado Springs, Colorado
1 November 1960

L. H. BUSS
Director of Command
History

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CONTENTS

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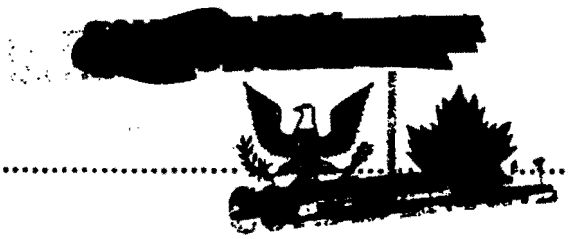

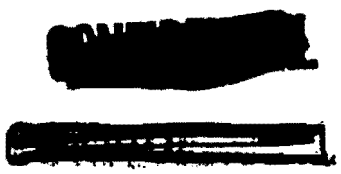

MAPS & TABLES

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CHAPTER 1

Air Defense Program Changes

A YEAR OF CHANGES

As shown on the map on the following page and discussed in detail in this chapter, between June 1959 and July 1960, there were wholesale changes in the program for the air defense system against the manned bomber. All but a minor part of these changes were made by the Air Force and nearly all of these early in CY 1960.

Mainly, these changes cut back or cut out the program for advanced air defense equipment that was to be used against the manned bomber. This would affect the quality of this system and bring it to an early maturity. To a lesser extent would these changes reduce the total force level of this system in comparison with what had been programmed.

These changes resulted from budget limitations, a shifting emphasis from the manned bomber to the ballistic missile threat, and a matching of available funds against priorities.

REVISIONS IN CY 1959

A new program for U. S. air defense forces had been established by the start of FY 1960. This was contained in the Continental Air Defense Program (CADP), dated 19 June 1959, provided by the Secretary of Defense. This program revised downward the program for some items, left others at or near their previous level.

The U. S. interceptor force (ADC and Alaskan Air Command) was to be scaled down to 44 squadrons by FY 1963, approximately the previously-programmed FY 1963 level (the June 1959 force had 59 squadrons). Bomarc had been planned by the Air Force in 1957 to reach an

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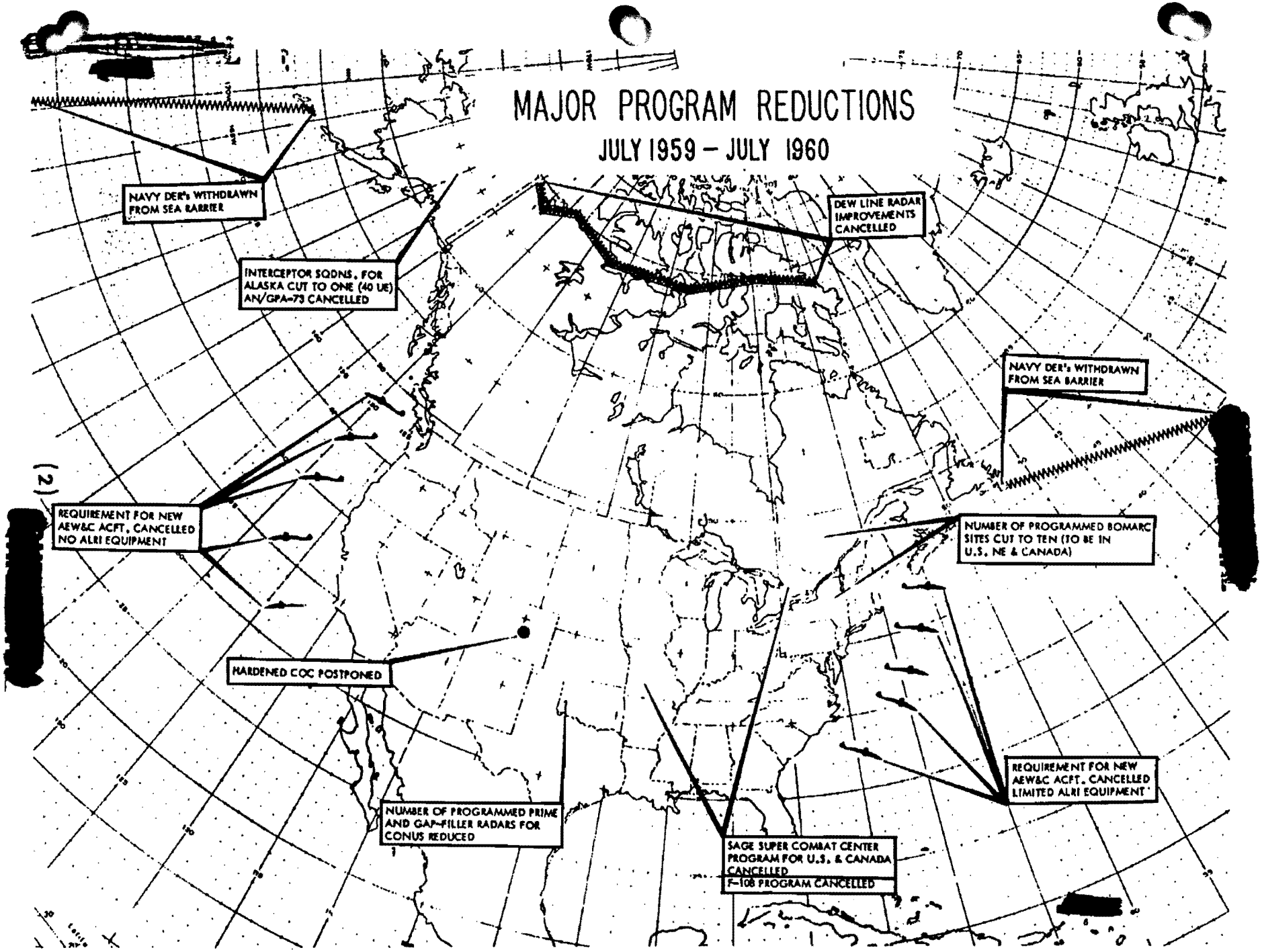
MAJOR PROGRAM REDUCTIONS
JULY 1959 – JULY 1960
NAVY DER's WITHDRAWN FROM SEA BARRIER
INTERCEPTOR SQDNS. FOR ALASKA CUT TO ONE (40 UE) AN/GPA-73 CANCELLED
DEW LINE RADAR IMPROVEMENTS CANCELLED
NAVY DER's WITHDRAWN FROM SEA BARRIER
REQUIREMENT FOR NEW AEW&C ACFT. CANCELLED NO ALRI EQUIPMENT
NUMBER OF PROGRAMMED BOMARC SITES CUT TO TEN (TO BE IN U.S. NE & CANADA)
HARDENED COC POSTPONED
NUMBER OF PROGRAMMED PRIME AND GAP-FILLER RADARS FOR CONUS REDUCED
REQUIREMENT FOR NEW AEW&C ACFT. CANCELLED LIMITED ALRI EQUIPMENT
SAGE SUPER COMBAT CENTER PROGRAM FOR U.S. & CANADA CANCELLED
F-108 PROGRAM CANCELLED

[redacted]

objective of 40 squadrons with 4,800 missiles, but was cut to a program of 29 operational squadrons with 1,740 missiles by the time of the CADP.* The latter directed a reduction of the program to 16 squadrons in the U. S. and two in Canada with 1,080 missiles.

Hardened SAGE Super Combat Centers (with FSQ-32V computers) were to be completed at six sites in the U. S. and one in Canada; three more FSQ-32V-equipped combat centers in a soft configuration were to be given consideration.

General deployment guidance, rather than specific figures, was provided for radar. The basic gap-filler program for all areas was for 246 sets. A tentative USAF program of October 1959 would have added 132 gap fillers (not including 45 for Canada already approved in the CADIN program).** At this time, there were 211 prime radars tentatively programmed for all areas, of which 121 were to be frequency diversity types. For off-shore, the CADP provided that the AEW&C stations would be equipped for integration into SAGE (Airborne Long Range Inputs - ALRI - equipment) off both coasts, which at the time meant five stations for each coast.

The specific program of the CADP was not changed until early in CY 1960. But deletions and deferrals were made in other areas and before 1959 ended, proposals were being made for changes in the CADP program.

In the area of radar and control, the following occurred. In December 1959, USAF advised that two SCC's (the 27th and 33rd Regions) and one FSQ-32V-equipped direction center (Albuquerque) would have to be deferred because of budget limitations. USAF also advised

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* These figures for the programs prior to the CADP did not include two squadrons for Canada.

** CADIN: Continental Air Defense Integration North, a U. S. - Canada air defense program providing radar, SAGE, and Bomarc in Canada.

[redacted]

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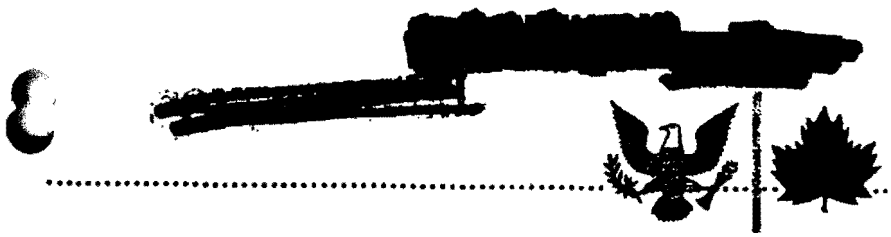


that OSD had placed a hold-order on all SCC equipment pending evaluation. In November, all action on the new hardened NORAD Combat Operations Center was deferred by USAF order. The possibility of getting advanced airborne early warning and control aircraft ended in September when USAF cancelled the GOR for such airplanes. USAF said that budget limitations and higher priorities forced its decision. In July, USAF cancelled a GOR for the DEW line, which, in effect, cancelled programmed improvements to the radars that would have increased height, range, and ECCM capability.

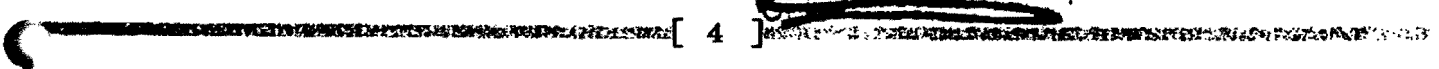
NORAD was advised of an indefinite delay in the modernization of Navy AEW aircraft on the DEW line barriers in October. NORAD concurred because the picket ships would provide acceptable high altitude early warning coverage. But then, in December, the JCS advised that the CNO proposed to withdraw the picket ships from the DEW line by March 1960. NORAD objected to this and also withdrew its earlier concurrence on the AEW airplanes. The CNO's proposal for withdrawal was made as a means of offsetting FY 1961 budget limitations.

Finally, two gap fillers programmed for Alaska were eliminated by the end of CY 1959. The reason was a limited USAF budget.

In the weapons area, the most damaging reduction came in the decision announced in September to cancel the F-108 long range interceptor. NORAD had planned an eventual system of some 20 squadrons of F-108's and protested this cut very strongly. In December, the JCS asked NORAD's comments on a USAF proposal to cut the total interceptor force to 42 squadrons by FY 1963, two lower than the CADP level. NORAD would not concur. But USAF replied early in 1960 that it could not meet NORAD's proposed interceptor force "because of financial, manpower, and other considerations....[1]

REVISIONS IN CY 1960

Preliminary Revisions. While USAF was advising of interceptor cuts, it also advised in a letter dated 20



January 1960, that a number of reductions and cancellations would have to be made in the ground environment because of FY 1961 budget limitations.(2) Many of the items listed by USAF had been proposed or discussed in 1959.

USAF listed the following specific actions that would be required:

a. Detection:
   Cancellation of DEW line radar improvements
   Cancellation of the FPS-28 (FD radar)
   Reduction of remaining FD radars
   Reduction of gap-filler radars

b. Identification:
   Cancellation of Mark XII IFF

c. Ground-Air Communications:
   Cancellation of TDDL (GKA-5) in the non-SAGE sectors of the austere area*
   Reduction of directional antennae (FRA-37)
   Reduction of hi-power amplifier (FRT-49)

d. Control:
   Cancellation of GPA-73 in Alaska
   Cancellation of GPA-73 in 64th Air Division
   Cancellation of Albuquerque DC
   Cancellation of 27th Air Division SCC
   Cancellation of 33d Air Division SCC

USAF's radar plan cut the number of frequency diversity radars to 99 (down from 121 in the October 1959 plan) and the number of gap-filler radars that were to be added to 93 (down from 132 in the October plan).**

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* Central and south U. S.

** This 93 was in addition to the 45 gap fillers for Canada in the CADIN program.

[redacted]

Shortly after this, NORAD was informed of another major reduction. The SAGE super combat center (hardened sites and new computers) program had been under study by the DOD Director of Defense Research and Engineering and a hold order had been placed on the equipment. In a study report, dated 25 January, this office recommended cancellation of the entire program.(3)

One of the conclusions of this office was that the first priority should go to making the current SAGE system operational with the highest degree of effectiveness. The report stated that the "soft" SAGE system, fulfilling all the objectives of the CADP of June 1959, could be approximately 80 per cent effective at the end of 1961 and complete in 1963. The hardened system proposed would not be complete until 1965. The report pointed out that "the role of the defenses against the air-breathing threat after about 1965 is not clearly seen. It may be one of preventing a 'free ride' by enemy bombers in a clean-up role after the initial missile attack. Highest priority should be placed on the installation and effective operation of those items that can be completed by 1963."(4)

CINCNORAD strongly objected to the conclusions and recommendations of this office in a memorandum to the JCS on 29 January 1960.(5) But, regardless, on 18 March, the JCS advised that they had approved cancellation of SAGE super combat centers.(6) The cancellation of SCC's had by this time become part of a revised program of the Air Force that the latter was about to present to Congress.

Cut back of Bomarc was another part. The JCS also advised on 18 March that they were considering a proposal for reduction of the Bomarc program to eight U. S. and two Canadian sites with a total of 210 A and 196 B missiles. Comment was requested. This was made by CONAD.(7)

> The Air Force Bomarc program initially contained 4800 B missiles, the number judged necessary to accomplish the air defense mission by a family of weapons -- the F-108, Bomarc B, and Nike. By piece-meal subsequent actions the F-108 has been cancelled and no

[redacted]

[redacted]

substitute provided, the Nike program is now resolved at 139 Hercules batteries, and you have deleted from the ground environment to support this family of weapons all super combat centers and their hardening. ...CINCONAD must express strong objection to your current proposal to reduce the Bomarc program by over 90 per cent and to provide some 400 missiles, only half of which would be B.

The JCS replied in April that CINCONAD's objections had been considered and they had advised the Secretary of Defense of his position, but they had recommended approval of a reduced Bomarc program.(8)

In addition to Air Force cuts, on 3 March, NORAD was informed by the JCS that the Navy withdrawal of DER picket ships from the DEW line sea barriers (proposed in 1959 -- see above) had been approved.(9) Commander-in-Chief Pacific then advised that the Pacific picket ship force would be withdrawn by 1 April.(10) CINCLANT said that the last ship would depart from its station on the Atlantic barrier on 26 March.(11)

Revised Air Defense Program. Following hard on the heels of all of the above, NORAD received from USAF a whole new set of changes in a letter dated 30 March 1960, which constituted a revised air defense program. Explained USAF in its letter, "Severe resource limitations coupled with higher priority military requirements have made it necessary to make further substantial reductions in current and planned USAF programs for defense against manned aircraft."(12)

The Air Force Chief of Staff, General Thomas D. White, explained the revised program to Congress on 24 March. Among his main points were the following:(13)

> First, I am recommending major changes in the air defense system we had previously programmed. ... Second, I further propose that in order to expedite the improvement of our overall military posture certain critical projects are substituted.

[redacted]

Specifically, my recommendations are:

(a) Reorient the air defense ground environment system by cancelling the SAGE super combat center program.
(b) Further limit the Bomarc B program.
(c) Adjust our air defense programs to assure earlier completion of the revised system.
(d) Expand our intercontinental ballistic missile program.
(e) Improve our fighter-interceptor force.
(f) Accelerate space and ground systems to provide warning against ballistic missile attack.

Three primary objectives will be attained by the actions we are recommending today. These are: (1) more timely completion of an improved defense against the air breathing threat; (2) acceleration of systems designed to provide ballistic missile warning; and (3) an improved deterrent posture.

The 30 March Air Force letter laid out the following changes, most of which were to go through up or down adjustments in the succeeding months.

No resources were available for super combat centers and they had been deleted from the program. The SAGE system was to be completed under a program of 22 direction centers and three combat centers, plus one additional FSQ-7 computer for Canada. Limited resources would be made available for an emergency manual back-up system.

The frequency diversity radar program outlined on 20 January (99 sets -- see above) could be supported. Of the search radars in the current system, USAF proposed closing down or turning over to FAA 32 sites (29 in the south-central U. S., three in Canada). The gap-filler radar program for the U. S. was to be reduced to

48 sites (down from 93 in 20 January plan). These 48 plus the 45 programmed for Canada in the CADIN program were to be the total gap fillers added. Only one wing (35 aircraft), on the East Coast, of the AEW&C force would be converted to the ALRI configuration.

In the weapons area, USAF said it planned to cut interceptors down to 35 squadrons by end FY 1964. The Bomarc program was to be cut to ten squadrons. In addition, USAF said fourteen F-102 squadrons were to go to the Air National Guard. USAF stated that an improved ECCM, communications, armament and low altitude capability would be provided for the manned interceptor force.

Much of this program, as noted above, was to change considerably; for example, the interceptor force was increased.

At any rate, NORAD was asked to recommend a system configuration and deployment based on this new program. On 20 April, NORAD sent its plan to USAF and also advised the JCS and COSC of its concept and asked for a change in the NORAD mission statement. Because of the considerable reductions, the basic question was whether to attempt to provide defense for all areas previously considered by simply thinning out the coverage or to concentrate on vital areas and cut the defenses within one area. NORAD decided on the latter. In letters to the JCS, COSC, and USAF, NORAD said that the reductions made it impossible to implement the approved concept of an area defense in depth for North America.[14] NORAD said it was now forced to deploy the available weapons specifically in defense of the most vital areas of the continent.

NORAD defined these areas as the West Coast, from San Diego to Seattle-Vancouver, and the Northeast bounded by a line from Duluth eastward to Chatham, New Brunswick, southward to Charleston, northwest to Kansas City, and north back to Duluth. The shortage of ground environment and integrated control equipment would not permit effective control of weapons in other areas, NORAD stated. The intervening sections of the U. S., with the exception of a thin line westward from Duluth, had to be

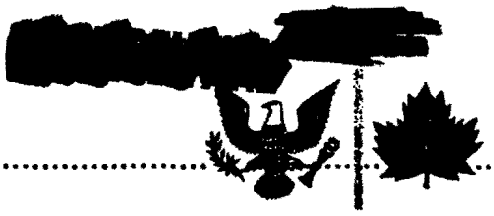
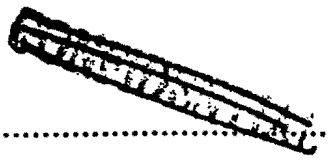
designated as a warning, identification, and air traffic control area only. There would be no regular forces deployed in this area; the National Guard would be required to provide identification and combat capability.

Because of the reductions and the resulting necessity for this new deployment, CINCNORAD asked the JCS and the COSC for a change in his mission statement to read as follows: "To defend to the maximum extent possible, with the forces provided, the most vital areas of the United States and Canada" He also asked that these two agencies change the currently approved concept of defense in depth and area defense by adding the words "to the extent possible with the forces provided."

NORAD's plan for deploying radars would close down 19 prime radars and transfer seven to the FAA for a total saving of 26 radars rather than the 32 proposed by USAF. The NORAD plan also deleted frequency diversity radar from two sites in the SAGE area that would keep their FPS-20's.

The NORAD criteria was to provide double to triple frequency coverage in the Northeastern area and double frequency coverage in the North Central and West Coast areas at 10,000 feet and above, and single coverage at 10,000 to 15,000 feet over the remainder of the U. S. A Denver-Salt Lake City hole was expected to be filled in by FAA. Within the Northeast area, NORAD would provide 500 foot (2,000 feet over mountainous areas) coverage 150 nautical miles forward of the Bomarc base at Duluth and 180 nautical miles forward of other Bomarc B bases (a reduction from the DOD and USAF approved criteria of August 1959 of 230 nautical miles forward); 500 foot coverage 100 nautical miles around Chicago, Detroit, and Pittsburgh; and intermediate coverage down to 2,000 feet insofar as possible.

There would be coverage down to 500 feet (2,000 in mountains) from Duluth to Seattle-Vancouver and south to San Diego, with intermediate coverage to 2,000 feet as possible. Finally, the NORAD plan provided for an identification line 50 nautical miles wide down to 500 feet from San Diego eastward along the southern border to

Patrick AFB, Florida, and north along the coast to Langley AFB, Virginia.

In regard to weapons, NORAD s proposed deployment was in keeping with this ground environment. NORAD also asked that the full F-102 program be kept in the regular force and reiterated its requirement for the F-108 long range interceptor.

In the matter of control, NORAD asked for four Iconorama sets to be added to the three SAGE FSQ-8's USAF would make available for combat centers. NORAD said it had two exceptions to its plan for emergency manual back-up for SAGE Mode III operations submitted in July 1959.* It wanted to add a manual back-up for two sectors (Ottawa and Montgomery) and it was looking into a means for Mode III Bomarc control (excluded in the July 1959 plan).

Plan X. With the cancellation of the SAGE Super Combat Center program, it became necessary to redesign the operational structure of the system. Under the SCC plan, there were to be ten regions which included one in Canada (there was also to be a region in Alaska). This configuration was considered the best for air defense of the continent. Among other things, it provided flexibility and a lesser degree of vulnerability than any other plan. Therefore, in redesigning the system, NORAD tried to keep these objectives insofar as possible, i.e., to deviate as little as possible from what was considered the optimum organization. In addition, NORAD had to consider U. S. - Canadian agreements and the needs of the Army Air Defense Command.

NORAD proposed a boundary alignment that would result in seven regions (not including Alaska) and 23 sectors. As noted above, there were to be three FSQ-8's in the revised program. These would stay at the 26th, 30th,

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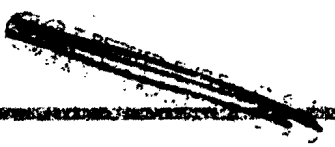
* See NORAD/CONAD Historical Summary, Jul-Dec 1959, pp 24-34.

[redacted]

and 25th Regions, where, as of 15 May 1960, they were in and operating. For the remaining regions, the 28th, 29th, 32d, and Northern (35th),* NORAD asked for Iconoramas for display and back-up at the combat centers.** It was later decided, however, that Iconorama would not be needed at the 35th/Northern NORAD Region if certain modifications were made to the already-programmed SAGE FSQ-7 to provide enough computer capacity to accomplish both sector and region functions.(17)

Just prior to submission of this plan by NORAD to the JCS and COSC, USAF ADC provided NORAD with an alternate plan. ADC's plan provided for four regions, three in the U. S. (not including Alaska) and one in Canada. This was termed Plan Y by NORAD, the other plan, Plan X. Both plans were submitted, but after study and comparison, CINCNORAD recommended the seven-region Plan X to the JCS, COSC, and USAF on 9 May 1960.

ADC's Plan Y would have provided an all SAGE organization. But among other things, Plan Y required more people than Plan X, deviated more from the SCC plan, and created a greater span of control below region headquarters. ARADCOM supported the NORAD Plan X as being most acceptable for continuing to collocate its region headquarters and align its boundaries with those of NORAD.(18) Plan Y, on the other hand, was considered completely unacceptable by ARADCOM.

Revisions of the Revised Program. At this point, a good part of the air defense program became quite uncertain mainly because the U. S. House of Representatives

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* The currently existing 33d Region would be discontinued about the first half of FY 1962. The 29th and 32d Regions would cover the area of the 33d.

** In separate correspondence, on 8 March 1960, NORAD also backed Alaskan Air Command's request for Iconorama to replace the deleted AN/GPA-73 system for the Alaskan NORAD Region.

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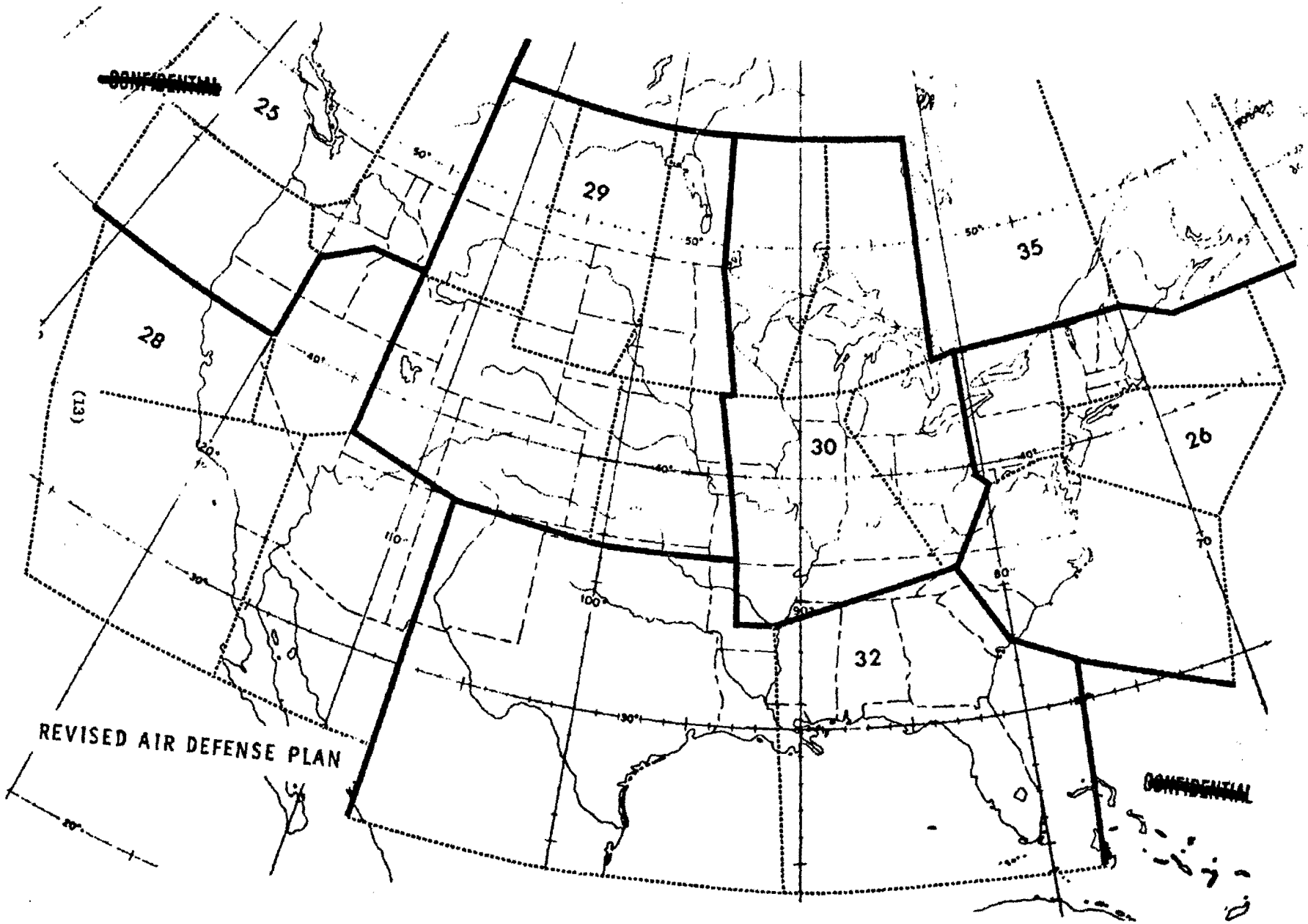
CONFIDENTIAL
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REVISED AIR DEFENSE PLAN
CONFIDENTIAL

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deleted the Bomarc B program when it passed the DOD appropriations bill on 3 May. NORAD and USAF ADC then began considering, at USAF's request, different interceptor deployments with Bomarc B and without, with more F-106's, with more F-102's, and with both and in varying combinations. Thus, the interceptor, Bomarc and gap-filler programs were affected and indefinite.

On 20 May, USAF provided an interim answer to NORAD's 20 April proposals. USAF pointed out that there were uncertainties in many areas, but that it could comment on those portions that were firm.(19) USAF said that the primary control system configuration, boundaries, and deployment appeared supportable provided that the 35th/Northern NORAD Region DC/CC could be achieved as proposed. The high altitude radar program proposed also appeared acceptable. Finally, USAF said it agreed, in principle, with NORAD's desire to keep F-102's in the regular establishment regardless of the final status of the Bomarc program.(20) A little later, USAF repeated this F-102 agreement in principle and advised that it was studying the support of an interceptor force essentially the same as programmed prior to the air defense revision.

In the meantime, USAF and DOD asked Congress for reinstatement of the Bomarc program under the revised FY 1961 program. And on 25 April, the NORAD Commander-in-Chief, General Laurence S. Kuter, testified before the Senate Subcommittee on Military Construction. General Kuter explained all of the reductions made and his position. He supported the requirement for Bomarc B in addition to the previously-stated NORAD requirements for the F-108, hardened SCC's and COC, and other requirements.

In June, the Senate restored funds for the Bomarc B program and added funds for two West Coast Bomarc bases. The Senate and House then worked out a compromise DOD appropriations bill which was passed on 30 June 1960. This bill provided $244 million for Bomarc in FY 1961 and prior-year funds, but deleted funds for the two West Coast sites. The bill also provided $100 million for fighter aircraft.

The final interceptor program, as it would be after all the up and down revisions, had not been established

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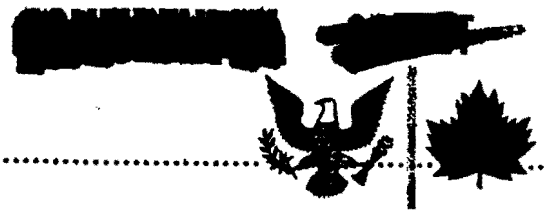


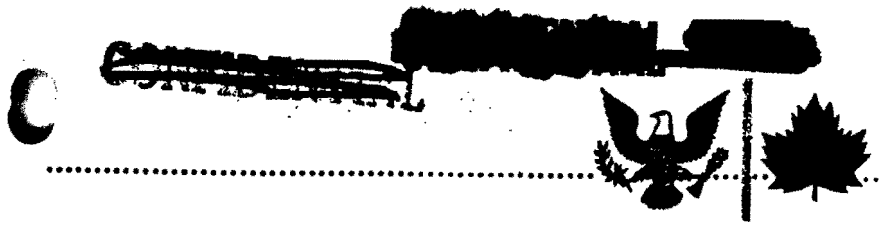
at mid-year. However, the general structure was apparent. The program of June 1960 for the interceptor force for the end of FY 1964 called for 19 F-101 squadrons totalling 342 aircraft, 14 F-106 squadrons totalling 252 aircraft, and nine F-102 squadrons totalling 241 aircraft, for an overall total of 42 squadrons and 835 aircraft. The F-102 squadrons included a 40-UE squadron in Alaska, a 33-UE squadron at Goose Bay, and a 12-UE squadron at Thule.

The above program did not cover, at this time, aircraft for Canada to replace the CF-100's which would be phased out in FY 1964. The final decision on this had not yet been reached.

The Bomarc program was also still changing at mid-year. The general structure was established, however; there would be ten squadrons (approximately five B and five A squadrons). As of June 1960, the total program for the U. S. and Canada was for 210 A missiles, 252 B missiles. The eight U. S. squadrons, as noted before, were to be deployed in the Northeast, the two Canadian squadrons at LaMacaza and North Bay.

Ground environment guidance was provided by USAF on 9 June to be used for the development of detailed plans and implementation schedules.(21) The structure was in accord with NORAD's Plan X. There were to be seven air divisions/regions (not including Alaska), 22 SAGE sectors, a manual control area in the western portion of the 32d Region, and a manual surveillance and tracking area in the southwest portion of the 29th Region. A display, such as Iconorama or equivalent, was to be installed in the 28th, 29th, and 32d Regions with an operational date of December 1961 (the 25th, 26th, and 30th had FSQ-8's, as noted). At the Northern NORAD Region, a combined direction center/combat center with a modified FSQ-7 was to be installed in the underground site started for the once-programmed SCC, with an operational date of 1 July 1963.

In addition to this primary control system, a limited back-up control system was to be provided around the previously-established ten NORAD Control Centers



and one additional NCC at San Francisco. USAF said that the NORAD operational plan for this system was approved, with the exception that no GPA-67 equipment would be provided.*

In regard to radar, USAF stated that implementation of the entire improved high altitude detection program was to be completed not later than April 1964 for height finders and July 1964 for search radars. The quantities listed to complete this program (including the seven-site Canadian CADIN program) were 93 frequency diversity search radars (plus 1 FPS-7 each for the ANG and ATC) and 99 FPS-26 height finders (plus one for ATC). Nineteen radars were to be closed down and seven transferred to the FAA. Seventeen of the radars were to be inactivated by the 4th Quarter of FY 1961, the other two a year later. USAF set the 1st Quarter of FY 1962 for transfer of radars to FAA. The ALRI modification was to be limited to the 551st AEW&C Wing (35 aircraft) on the East Coast and was to be completed by March 1962. Finally, USAF said it was tentatively maintaining a program of 93 new gap fillers (including 45 in CADIN), but this was being held in abeyance until the numbers required was resolved. This USAF guidance was prior to final Congressional action on Bomarc.

Besides Bomarc, there were other matters to be considered in gap-filler deployment. For one thing, NORAD issued on 17 June a new criteria for low altitude coverage.[22] One point of this was that coverage was to be based on flyable terrain rather than simply above terrain. Another point was establishment of priorities and specific areas for coverage (see Chapter Three). A second consideration was that NORAD wanted one standardized, improved gap-filler throughout the system.[23]

At any rate, as of 8 August 1960,** NORAD planners

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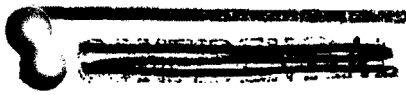
* See NORAD/CONAD Historical Summary, Jul-Dec 1959, pp 24-34.

** Correct figures for 30 June were not available, hence the 8 August figures.



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set the expected totals of prime radars that would be in the system in all areas at 194 (including those to be transferred to FAA) and gap fillers at 207.[24]

OTHER PROGRAM CHANGES

Redeployment of Hercules Fire Units. As noted above, in its reconfiguration of the system, NORAD decided to concentrate its defenses in the Northeast and the West Coast, leaving the remaining space in the U. S. as a warning-identification-air traffic control area. NORAD included in its guidance to the component commands on 8 April a proposal that Nike Hercules units programmed for seven SAC bases in this warning area be placed instead at defenses in the Northeast and West Coast.[25] ARADCOM concurred, except for some changes in new locations.[26] It also asked that the already-programmed redeployment of fire units from Thule and Hanford, in the FY 1962 program, be included with the other units for funds and authorization for FY 1961.

The five fire units from Thule and Hanford together with the 14 fire units from the seven SAC bases made a total of 19 units involved. However, removal of the four Thule fire units was dropped shortly thereafter (see below).

NORAD included the request for redeployment of Nike Hercules in its letter on 20 April to the JCS on its plan under the revised program.[27] The JCS replied on 18 May that they agreed with the changes and had forwarded them to the Secretary of Defense.[28] On 20 June, the Deputy Secretary of Defense approved the deletion of the seven SAC bases and Hanford and the changes in the locations for the 15 units involved.[29]

Northeast Area (Canada-Greenland) Force Changes. By the beginning of 1960, Air Force Headquarters had directed that two fighter-interceptor squadrons, the 323d at Harmon AFB, and the 327th at Thule AFB, Greenland, be inactivated.* NORAD had stated a requirement for the Thule

* For a discussion of the discontinuance of the 64th Region and the reorganization of the area, see Chapter II.

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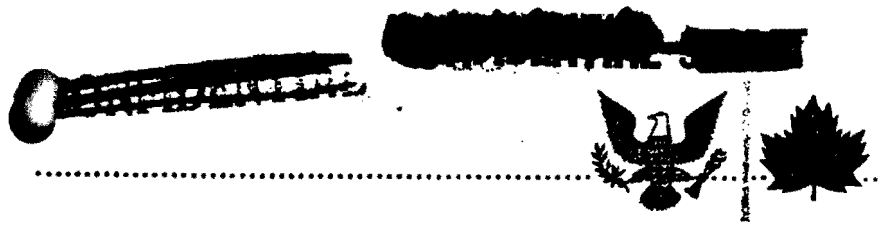

and Harmon squadrons until FY 1963 in its Objectives Plan for 1961-1965, dated 20 November 1959. On 8 January 1960, CONAD protested the unilateral USAF action on cutting these squadrons and stated that as long as there was a manned bomber threat there was a requirement for an interceptor squadron at Thule.[30] On 15 February, CONAD said that because it recognized that budget limitations made certain cuts necessary, it acceded to inactivation of the 323d at Harmon, but did not agree with the withdrawal of interceptors from Thule.[31] CONAD also pointed out that without interceptors it would be difficult for the Nike unit to operate at Thule.

On 9 March, the JCS told CONAD/NORAD that Air Force cuts had been approved by the Secretary of Defense.[32] CONAD was asked to review its requirement for the Nike unit at Thule in view of the decision to inactivate the interceptor unit.

On 29 February, ARADCOM had recommended redeployment of the Hercules unit from Thule to key metropolitan areas.[33] CONAD concurred and passed on the recommendation to the JCS.[34] Also, because of the withdrawal of the interceptors and missiles, CONAD recommended that the 931st ACW Squadron be moved out of Thule.

On 4 May 1960, the Army advised that the JCS approved the withdrawal of the 7th Artillery Group from Thule.[35] CONAD relieved this unit of its air defense alert requirement as of 29 April 1960; the 327th Fighter-Interceptor Squadron at Thule as of 25 February 1960.[36] USAF ADC issued an order inactivating the 327th Squadron as of 25 March 1960 and another order inactivating the 323d Squadron at Harmon AFB as of 1 July 1960.

Shortly thereafter, on 19 May 1960, ARADCOM and CONAD were advised by the Army that the JCS had been directed to restudy the matter of U. S. defense forces at Thule.[37] Until this study was completed, no further action was to be taken to withdraw personnel or equipment.

The 327th Squadron at Thule had already been inactivated (25 March), so there was nothing that could be done about it. But CONAD asked ADC to hold up on inactivation

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of the 931st ACW Squadron.[38] On 11 June, ARADCOM directed the suspension of further actions on inactivation and withdrawal of the 7th Artillery Group.[39]

The JCS advised USAF, Army, and CONAD on 17 June that an interceptor unit of not more than 12 aircraft was to be maintained at Thule.[40] Also, the ACW and Nike units, currently there, were to be kept. USAF then directed that an F-102 squadron, to come from ADC resources, be placed at Thule.[41] USAF confirmed that the 931st radar unit would remain. ADC proposed that the F-102 squadron be the 332d from England AFB, Louisiana, and that it be moved in the first quarter of FY 1961. USAF approved on 30 June 1960.[42]

NEW NORAD COMBAT OPERATIONS CENTER

Background. A decision was made by the JCS on 18 March 1959 to locate a new NORAD COC within Cheyenne Mountain, south of Colorado Springs. The previous month, the JCS had charged the Air Force with responsibility for carrying out the COC project in collaboration with NORAD. USAF then directed its Air Research and Development Command to assume management responsibility for the COC. ARDC, in collaboration with NORAD, was to examine the projected NORAD Command Control System and to determine COC requirements. A report was then to be submitted to USAF for forwarding to the JCS for approval for implementation. The ARDC report was submitted in May 1959.

In July 1959, USAF authorized ARDC to select a systems contractor for the COC and award a contract. This contract was to be carried out in two phases: a study phase to extend the ARDC study, which would have to be presented to the JCS for approval, and an implementing phase, started after JCS approval.

But the system contractor was not selected. And on 24 November 1959, USAF directed ARDC to defer all action on the COC (425L) system for an indefinite period. The system was under review, USAF stated, at Air Force Headquarters and might be reinstated in whole or in part as a study contract at a future date.

[redacted]

There were two considerations involved. One was a review of the requirement for all underground structures; the other was a review of all of the 400L series projects to uncover such matters as duplication.

Continued Study. As of mid-1960, the project was still being studied and still postponed. An ARDC "in-house" system study group completed its work and reported to USAF by 1 April 1960. The purpose of this study was to define more clearly the system requirements and costs for the JCS and the contractor. Another group, the so-called Winter Study Group,* sponsored by Air Force Headquarters, included the new NORAD COC in its deliberations. The latter was expected to complete its work and report in August 1960. In May, the Air Force Command and Control Development Division (ARDC) recommended to USAF that funds for excavation be released and that money be made available to begin source selection board procedures to select a system contractor.[43]

USAF replied to ARDC on 30 June, directing the latter to provide another in-house study to reexamine the projected COC to include estimates of the development, procurement, installation, and operational costs required to implement the COC for the time period 1963-1970.[44] The study was to be made in collaboration with NORAD.

Earlier, on 20 June, CINCNORAD had urged the Air Force Chief of Staff to direct that the excavation work be started immediately.[45] The Chief of Staff replied on 28 June that there were still a number of questions on requirements to be answered.[46] For this purpose, he said, ARDC had again been directed to provide a detailed report on these matters. He added that the previous actions resulting in deferral of construction of the COC stemmed from an austere budget and higher priorities of other systems in the critical years of 1960 and 1961.

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* Because it was formed in the winter.

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CHAPTER 2

Organization

SAGE REGION REORGANIZATION

Background. Since mid-1958, the NORAD/CONAD subordinate unit organizational structure had been undergoing extensive changes. These included the discontinuance of geographically-designated regions, discontinuance of divisions, establishment of numerically-designated regions and named-sectors, and realignment of region and sector boundaries. The purpose of these changes was to reorganize the structure for transition from the manual control system to the semi-automatic ground environment (SAGE) system.

From the purely manual system organization of mid-1958, the organization was to go to a seven-region structure by 1 July 1960 on the U. S. mainland, plus one region in Canada and one region in Alaska. And, after adoption of the SAGE Super Combat Center plan in 1959, it had been planned to shift to a ten-region SAGE structure by 1 July 1964 in the U. S. and Canada. There would also be a region in Alaska.

The Air Force Air Defense Command organizational structure was undergoing a similar reorganization which would bring a seven-division structure by 1 July 1960; ADC had also planned to shift to a nine-division SAGE structure under the SCC plan. The U. S. Army Air Defense Command also planned to establish a seven-region structure, but no changes from its five-region organization had been made as of 1 July 1960.

NORAD originally established in 1958 an overall total of 23 divisions and five regions. Of these, 16 divisions and three regions were on the U. S. mainland, five divisions and one region were in Canada, and two divisions and one region were in Alaska. The reorganization actions taken by 15 January 1960 reduced the

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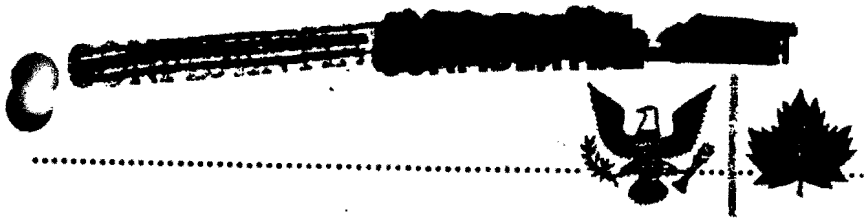

number of divisions on the U. S. mainland to two and increased the number of regions to six.

By 1 January 1960, NORAD/CONAD had also established 14 sectors. Nine of the SAGE direction centers in the SAGE sectors had become operational by this date. Two SAGE combat centers at regions, the 26th and 30th, were operating.

NORAD/CONAD Organizational Changes and Status (15 January to 1 July 1960). The last of the three geographically-designated regions within the continental U. S., Western NORAD/CONAD Region, was discontinued on 1 July 1960.* Its area was divided between two divisions, the 25th and 28th, both of which were redesignated regions on this date. With these actions, NORAD/CONAD established a seven-region structure within the continental U. S.

USAF ADC discontinued the last of its defense forces, the Western Air Defense Force, on 1 July. It also redesignated its 28th Air Division (Defense) as the 28th Air Division (SAGE) at the same time. This was the last division to be so designated. The 25th (the other division in Western's area) had been redesignated as a SAGE division on 1 March 1959.

NORAD/CONAD established five new sectors within the continental U. S. by 1 July 1960. In addition, four divisions in Canada and two divisions in Alaska were redesignated as sectors (see next section). These eleven new sectors added to the 14 established prior to 1 January 1960 made a total of 25 sectors in existence on 1 July. The eleven new sectors were as follows:

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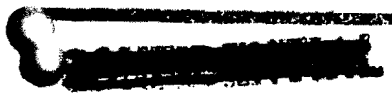
* Eastern Region was discontinued on 1 August 1959, Central Region on 1 January 1960.



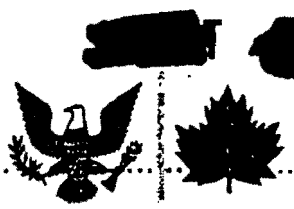


Table 1

SECTOR	DATE ESTAB.	HQS. LOCATION
Seattle NORAD/CONAD	1 March 1960	McChord AFB, Wash
Portland NORAD/CONAD	1 March 1960	Adair AFS, Ore
Sault Ste Marie NORAD/CONAD	1 April 1960	K.I. Sawyer AFB, Mich
Spokane NORAD/CONAD	1 April 1960	Larson AFB, Wash
Goose NORAD/CONAD (Manual)	1 April 1960	Melville AS, Lab
Anchorage NORAD/ CONAD (Manual)	15 May 1960	Elmendorf AFB, Alas
Fairbanks NORAD/ CONAD (Manual)	15 May 1960	Ladd AFB, Alas
Montreal NORAD (Manual)	15 May 1960	Lac St Denis, Que
Fredericton NORAD (Manual)	15 May 1960	St Margarets, N.B.
Ottawa NORAD (Manual)	15 May 1960	Edgar, Ont
San Francisco NORAD/ CONAD (Manual)	1 July 1960	Hamilton AFB, Calif

By 1 July, four new SAGE direction centers had become operational in the Seattle, Montgomery, Portland, and Sault Ste Marie Sectors, bringing the total operational to 13. In May, the third SAGE combat center, at the 25th Region, McChord AFB, became operational.

The organizational plan for the future had to be changed because of the Revised Air Defense Program and, in particular, the cancellation of the SAGE Super Combat Center Program. A new organizational plan, Plan X, was developed by NORAD. See Chapter One for a discussion of this plan and other changes. Plan X would provide a seven-region structure (not including the Alaskan NORAD Region). Since as of 1 July there were eight regions (not including ANR), one current region would be discontinued. The 33d Region, headquartered at Richards-Gebaur AFB, Missouri, would be discontinued about the first half of FY 1962. The 29th and 32d Regions would

[redacted]

TABLE 2

REORGANIZATION PROGRESS
CONUS REGIONS/DIVISIONS*

STATUS AS OF	NORAD/CONAD (U.S. ONLY)		USAF ADC (U.S. ONLY)		
1 Jul 1958	16 Divs. 9th 31st 20th 32d 25th 33d 26th 34th 27th 35th 28th 37th 29th 58th 30th 85th	3 Rgns. Eastern Central Western	16 Man. Divs. 9th 31st 20th 32d 25th 33d 26th 34th 27th 35th 28th 37th 29th 58th 30th 85th	3 Def. For. Eastern Central Western	0 SAGE Divs.
1 Jul 1959	11 Divs. 20th 30th 25th 31st 26th 32d 27th 33d 28th 34th 29th (Discontinued: 9th, 35th, 37th, 58th, and 85th)	3 Rgns. Eastern Central Western	7 Man. Divs. 20th 31st 27th 33d 28th 34th 29th (Inactivated: 9th, 35th, 85th, 58th, and 37th)	3 Def. For. Eastern Central Western	4 SAGE Divs. 25th 26th 30th 32d
1 Jul 1960	0 Divs. (Discont: 20th, 27th, 31st, & 34th)	7 Rgns. 25th 26th 28th 29th 30th 32d 33d (Discont: Eastern, Central, Western)	0 Man. Divs. (Inact: 20th, 27th, 31st, & 34th)	0 Def. For. (Inact: Eastern, Central, Western)	7 SAGE Divs. 25th 26th 28th 29th 30th 32d 33d

* For the overall NORAD total, there must be added two regions and, until 15 May 1960, seven divisions that were outside the CONUS. By that date, six of these divisions had been designated sectors and one discontinued.

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cover the area of the 33d. The 29th headquarters would move to Richards-Gebaur AFB and that of the 32d to Oklahoma City.

REDESIGNATION OF DIVISIONS UNDER ALASKAN AND NORTHERN NORAD REGION

The term "region" was applied to the major CONAD subordinate commands in January 1957;* it was extended to NORAD commands when the latter was formed. These regions had geographical designations (e.g., Western). And at first, the major sub-commands of the regions were termed "divisions" throughout the NORAD/CONAD system. These divisions were numbered to correspond with USAF ADC divisions. But, within the continental U. S., in the SAGE reorganization discussed above, the original NORAD/CONAD regions were discontinued, the original divisions were reestablished as regions, and new sectors named after cities were established. Thus, "region" remained the organizational element immediately subordinate to NORAD Headquarters and, within the CONUS, "sector" became the major subdivision of a region.

NORAD decided to make the designations uniform throughout the command, i.e., to discontinue divisions and establish sectors in their place. In January 1960, NORAD proposed to the Alaskan Command that the 10th and 11th NORAD/CONAD Divisions be redesignated as sectors (1) The names Anchorage Sector for the 10th Division and

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* Region and sector were the traditional designations given to the division of an air defense territory. USAF ADC had originally named its region commands "defense forces" and its sector commands "divisions." CONAD followed this practice when it was formed, simply designating its units to coincide with those of ADC, the only distinction being that it called its units "joint defense forces" and "joint divisions." In 1957, it renamed its joint defense forces "regions" and its joint divisions simply divisions.

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Fairbanks Sector for the 11th Division were suggested. ALCOM concurred and asked that 15 May 1960 be the date for this change.[2] They were renamed accordingly on this date.

In March, NORAD proposed that Northern NORAD Region's remaining divisions, the 1st, 2d, and 3d (the 5th was to be discontinued and the 64th to be reestablished as the Goose Sector), be renamed as sectors.[3] RCAF and NNR both concurred and recommended the names Montreal Sector for the 1st Division, Fredericton Sector for the 2d Division, and Ottawa Sector for the 3d Division.[4] These divisions were renamed accordingly on 15 May 1960.[5]

As of 1 July 1960, all divisions in NORAD/CONAD had either been redesignated or discontinued, leaving only regions and sectors.

INTEGRATION OF THE 25th and 5th DIVISIONS

Background. In November 1958, Western NORAD Region forwarded a proposal of the 5th and 25th NORAD Divisions to shift operational control of certain USAF-manned radar units in Canada from the 5th to the 25th. RCAF ADC/NNR concurred on 19 December 1958 and NORAD approved the plan and directed implementation on 16 January 1959. Northern and Western Regions then recommended that the 5th be disbanded and its area of responsibility and control of forces be transferred to the 25th. NORAD also concurred in this plan.

The change was planned in phases. The first step was for the 25th to assume operational control of the four USAF-manned radars. This was done on 2 March 1959. The second step was for the 5th to be phased out and the 25th to assume operational control of the RCAF air defense forces.

NORAD then submitted manning proposals to the JCS and COSC. In August 1959, NORAD was informed by the RCAF that the Canadian Cabinet Defence Committee had approved, in principle, the Canadian participation in region and sector headquarters. On 22 October 1959, NORAD proposed to the

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COSC and the JCS that the date for assumption of operational control by the 25th be 1 March 1960. The Canadian Executive Agent replied in November that the 1 March date was satisfactory.

Assumption of Control by the 25th. As it turned out, the date for assumption of control by the 25th and phase-out of the 5th was delayed to 15 May 1960. The Chief of the Air Staff, RCAF, asked for this delay until 15 May at which time the 25th NORAD Division SAGE combat center would become operational. By that date, the RCAF would have the required personnel in place. NORAD agreed.

On 8 April 1960, the JCS informed NORAD that the integration was approved, insofar as the U. S. was concerned, and implementation authorized.[6]

As planned, effective 15 May 1960, the 5th NORAD Division was discontinued and operational control transferred to the 25th NORAD Division.[7]

CANADA - U. S. BORDER REGIONS BOUNDARY CHANGES

In connection with the merger of the 25th and 5th NORAD Divisions, Northern NORAD Region recommended in January 1960 a realignment of boundaries and the setting up of a large surveillance area in the north.[8] NNR proposed to create this region out of areas that currently were within the 3d, 5th, and 64th NORAD Divisions. The 5th Division had a large non-tactical area from the 59th parallel, where the 25th Division boundary would stop (after the 5th and 25th integration), to the North Pole. The 3d Division area also continued to the North Pole from where it bordered the 29th and 30th NORAD Regions along the south at the 51st and 53d parallels. The tip of 64th NORAD Division's northern border went just short of the North Pole.

NNR proposed to pull the 64th NORAD Division boundaries in somewhat from the west and cut off the northern boundary at the 65th parallel. Then the area that had been within the 64th's boundaries plus the 3d Division's

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area above the 55th parallel and the 5th Division's area above the 59th parallel would be combined into a surveillance region under the operational control of NNR.

To establish uniformity of boundaries along the southern border of this area, NNR recommended that the boundaries of the 29th and 30th NORAD Regions and 3d NORAD Division be extended northward to run in a line along the 55th parallel.

NORAD gave its concurrence on 7 March, with some minor exceptions (9) NORAD suggested that the new surveillance area be included within the area of the NNR without separate designation so as to avoid confusion. NORAD also suggested that the northern boundary of the 64th Division be extended to about the 66th parallel (NNR had proposed the 65th parallel) to include the area of radar coverage of station C-31 at Frobisher, Baffin Island. Finally, NORAD asked that the 25th Division boundary on the north continue straight along the 59th parallel from its eastern border to the Alaska-Canada border rather than dropping down as it currently did on the western side.

The Chief of the Air Staff, as Executive Agent, concurred on 27 April (10) Concurrence was given on the understanding that the channels of communication for the DEW line, Mid-Canada line, and the Ground Observer Corps would remain unchanged and that operational

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* NORAD defined the southern boundary of the surveillance area as follows: Starting at the point where the 59th parallel crosses the Alaska-Canada border; thence east along the 59th parallel to 59 degrees north, 113 degrees 25 minutes west; thence south to 55 degrees north, 113 degrees 25 minutes west; thence east along the 55th parallel to 55 degrees north, 69 degrees west; thence north to 57 degrees north, 69 degrees west; thence northwest to 66 degrees north, 77 degrees west; thence east to 66 degrees north, 58 degrees west.

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control of the entire MCL would remain with the NNR. The latter concurred with NORAD's changes on 25 April.[11] NNR asked that the general order changing boundaries provide that operational control of the entire MCL and GObC be exercised by NNR and authorize direct coordination between the 25th, 29th, and 30th Regions and section control stations of the MCL on operational matters.

NORAD agreed on 12 May.[12] These requested provisions were in NORAD GO 14, 13 May, and 19, 15 June 1960. The new boundaries for the 25th Division, 29th and 30th Regions, Ottawa Sector (3d Division), and Goose Sector (64th Division) became effective 15 May 1960. These are shown on the map following.

REORGANIZATION OF FORCES IN THE NORTHEAST AREA

By the beginning of 1960, Air Force Headquarters had decided to place Pepperrell AFB, St. Johns, Newfoundland, on caretaker status.* The shutting down of Pepperrell AFB had been considered by the Air Force for a long time. As far back as March 1958, USAF had said that it wanted to close Pepperrell for economy reasons. At that time, the Air Force decided to move the 64th Air Division to Harmon AFB. This plan was dropped in 1959, however, and a new means of solving the problem looked for.

In July 1959, USAF again said that operations and logistic support of the Northeast Area from Pepperrell was too costly in manpower and money. An alternate, more economical means of supporting air defense functions in the area had to be found, USAF said.[13]

On 5 January 1960, USAF announced that it had decided to place Pepperrell in a caretaker status in

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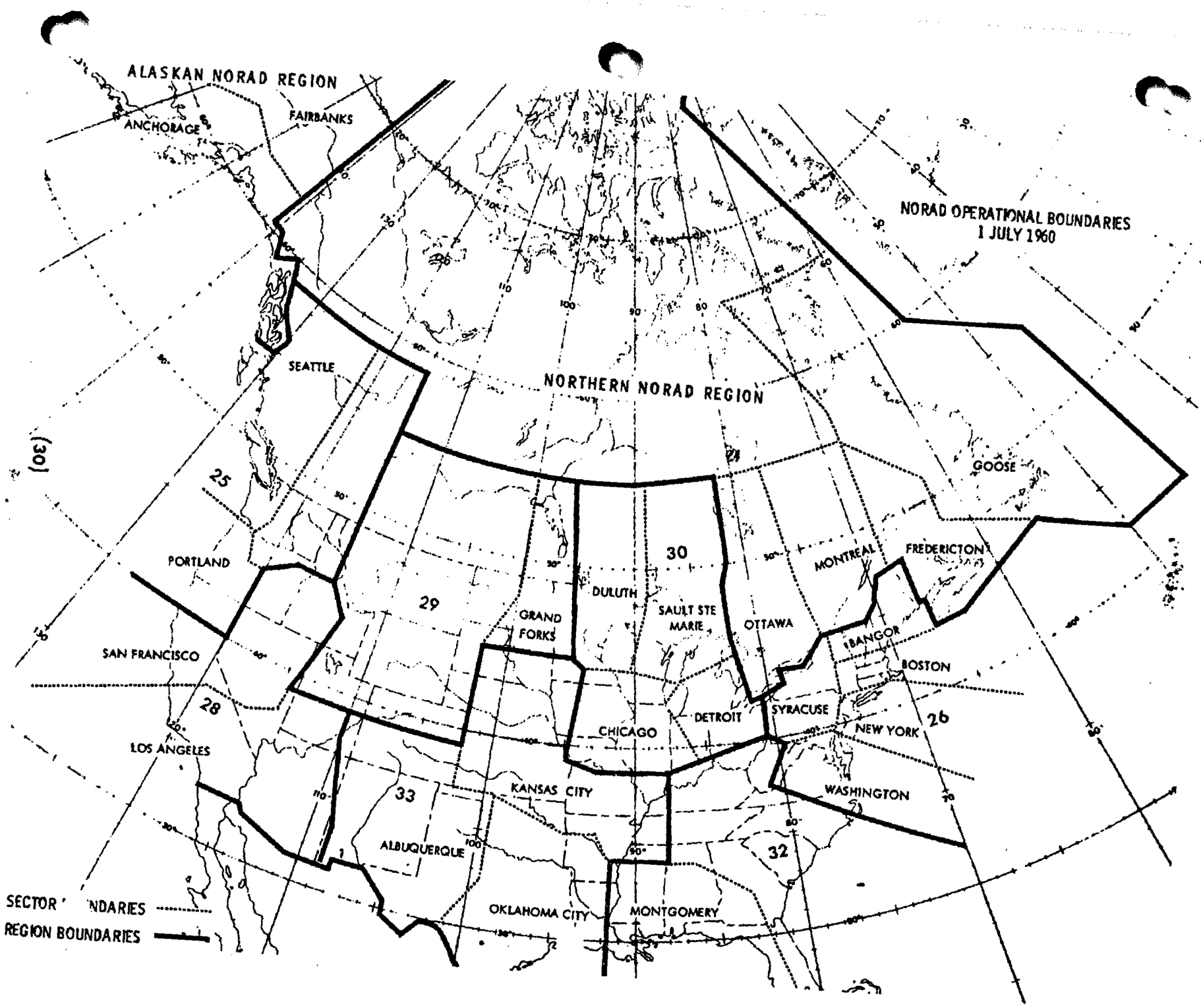
* Pepperrell AFB (originally Fort Pepperrell) was first occupied by U. S. personnel in November 1941.


NORAD OPERATIONAL BOUNDARIES
1 JULY 1960
ALASKAN NORAD REGION
NORTHERN NORAD REGION
ANCHORAGE
FAIRBANKS
SEATTLE
PORTLAND
SAN FRANCISCO
LOS ANGELES
ALBUQUERQUE
KANSAS CITY
OKLAHOMA CITY
CHICAGO
DULUTH
GRAND FORKS
SAULT STE MARIE
DETROIT
OTTAWA
MONTREAL
FREDERICTON
GOOSE
BANGOR
BOSTON
SYRACUSE
NEW YORK
WASHINGTON
MONTGOMERY
25
26
28
29
30
32
33
SECTOR BOUNDARIES
REGION BOUNDARIES

[redacted]

September.[14] ADC's plan for reorganization was to place an air division at Stewart AFB, New York, to handle ADC's administrative and logistic functions in the Northeast Area. For this purpose, ADC moved its 64th Air Division (Defense) from Pepperrell to Stewart.*

In the meantime, NORAD had to reorganize its structure in the Canadian part of the Northeast Area, and CONAD its structure in Greenland. A NORAD/CONAD reorganization plan was issued on 10 March 1960.[15]

The NORAD/CONAD task was to reorganize to continue to provide operational control and command in the area. In the reorganization plan, it was stated that:[16]

> The organization for the area must be so designed to make one agency responsible for exercising operational control or command over all elements of the system necessary in the accomplishment of a single task. Since this agency will exercise operational command and operational control over CONAD and NORAD forces respectively, it will be established as a CONAD/NORAD headquarters. This headquarters will report to Northern NORAD Region on matters of NORAD responsibility. It will be designated the Goose NORAD/CONAD Sector.

Accordingly, the Goose NORAD/CONAD Sector (Manual) was established at Melville AS, Labrador, on 1 April 1960.[17] The command assignment of the Goose CONAD Sector was to Headquarters CONAD; the Goose NORAD Sector was to Headquarters NNR. USAF ADC established the Goose Air Defense Sector (Manual) on 1 April. Effective this same date, the 64th NORAD/CONAD Division was discontinued.[18] The latter's combat center closed on 1 April and all functions were assumed by the Goose NORAD/CONAD Sector.[19]

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* ADC issued orders discontinuing its 64th as of 1 July and establishing the 72d Air Division at Stewart, but later revoked these orders and continued the 64th at Stewart.

[redacted]

[redacted]

CONAD forces at Thule and DEW East were assigned to the operational command of the Goose CONAD Sector. CONAD established the Thule CONAD Control Center on 1 April to exercise operational command. It was directly responsible to the Goose CONAD Sector.

ORGANIZATION PLAN FOR NORAD/CONAD REGIONS AND SECTORS

On 8 February 1960, NORAD submitted to the JCS its plan for organization of the region headquarters.* The plan covered all regions except the Northern and Alaskan Regions. The former was handled separately and the organization of the latter was left to the wishes of the Commander-in-Chief Alaskan Command. The sector organization was not covered on the assumption that the concepts and principles approved for the region would be applicable to the sector. NORAD proposed that the date for implementation of its plan be 1 July 1960.

Approval was not obtained from the JCS, however; the Revised Air Defense Program intervened (see Chapter One). Because of the reductions, specifically the cancellation of the SAGE Super Combat Center Program, NORAD revised its plan for boundary configuration. Because of the changes in this new plan, Plan X, the JCS returned the NORAD plan for its region headquarters on 27 June 1960. The JCS asked that NORAD resubmit a subordinate organization plan based on Plan X and include both region and sector headquarters.

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* See NORAD/CONAD Historical Summary, Jul-Dec 1959, pp 15-20, for details and background.

CHAPTER 3

Operational Policies & Procedures

WARNING AND READINESS POLICIES

NUCLEAR DETONATION REPORTING

Background. Prior to September 1959, CONAD had responsibility for nuclear detonation and fall-out reporting.* But on 1 September, the JCS turned the job over to NORAD. NORAD was to establish and operate a nuclear detonation and fall-out reporting system for all detonations, other than test explosions, occurring in or adjacent to the U. S. And, subject to Canadian concurrence, this responsibility also included Canada. Until an automatic system was available, NORAD had to operate a manual system.

The Interim Manual System. NORAD laid down the requirements for an interim system in Annex J to NORAD Operations Order 1-60, Air Defense of the North American Continent, dated February 1960. This system was based primarily on individual observations. Region commanders were made responsible for coordinating and directing (1) the collection, evaluation, and dissemination to their units, adjacent regions, and NORAD Headquarters of basic detonation data; and (2) dissemination of radioactive fall-out warning reports.

Region commanders in the U. S. were to get NUDET data from personnel at air defense prime radars, Nike fire units, USAF Air Weather Service facilities, FAA

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* For background, see NORAD/CONAD Historical Summary, July-December 1959, pp 52-53.

field facilities, OCDM Warning Centers, and interceptor squadrons. Gaps would be filled by reports from U. S. Army and Navy facilities. The Commander, NNR, was to use RCAF ADC units and facilities and such other agencies as designated by the Canadian Government to get his data.

Work on an Automatic NUDET Reporting System. During late 1959 and early 1960, a number of conferences were held between representatives of NORAD, JCS, DOD and other agencies on an automatic system. Among the proposals was that a Service should proceed with the development.

The upshot was that on 8 April, NORAD learned that USAF had been instructed by DOD to develop, procure, and install an automatic system responsive to the requirements of DOD and the Office of Civil and Defense Mobilization.(2) The system was to be operational by 1 July 1962. USAF had designated its Air Research and Development Command as action agency for the development.

Operational test and evaluation of the system was made the joint responsibility of ADC and ARDC.(3) SAC was to take part also to insure satisfaction of its needs.

USAF Bomb Alarm System. A second system to report nuclear explosions was being developed by Western Union for USAF. The requirement for this system had been established in 1958. It was to be designed to observe about 100 target areas in the U. S. and continuously report their condition to display boards located at six military centers.

Western Union presented plans for a system to USAF in June 1959. The following August, Western Union was awarded a contract to install the system.(4) The plans called for installation of detectors or sensor devices that would react to radiation from nuclear explosions from 400 kilotons to 20 megatons. These sensors were to be placed in groups of three at 120° intervals and 11 miles out from the center of each area. Each sensor would be interrogated from master control centers which, in turn, would report to the display centers.

[redacted]

By March 1960, a prototype system, consisting of sensors located at 14 target areas on the East Coast and a display panel in the USAF Command Post, had been installed. In May, USAF accepted the prototype net and asked Western Union to put in the rest of the system.[5] Testing of the prototype net was scheduled to begin in July 1960.

NORAD kept abreast of the development of the USAF system unofficially. NORAD felt that its responsibility for NUDETS made it essential that information from the network be integrated into the NORAD system. On 5 April 1960, NORAD asked the JCS for information on the concept and operation of this system.[6] The following month, representatives from Western Union explained the proposed system.

It was to be installed in two phases. Phase I would consist of placing sensors at 99 -- later expanded to 168 -- target areas within CONUS and setting up six display centers. This portion was to be operational by 1 January 1961. Phase II would expand the system to the BMEWS sites at Thule, Greenland, and Clear, Alaska, and such sites in Canada as the Canadian Government wanted. No deadline was set for completing Phase II.

NORAD wanted sensors at the two BMEWS sites as soon as possible. On 27 May 1960, NORAD asked USAF to consider placing the Thule site in the Phase I implementation plan and to equip the Clear site as early as practicable.[7] USAF refused, stating that it was not economically or technically feasible to include either site in Phase I. Detectors would be installed at these sites during the last quarter of FY 1961 and the first quarter of FY 1962. This would insure their being included in the Phase II net which had an estimated operational date of late CY 1961.

In a separate action, NORAD also asked USAF to confirm that there would be a display panel in the NORAD COC.[8] USAF replied that NORAD's COC was included in five centers that had been funded by that time. NORAD concurred in USAF's plan for the NORAD display on 10 June.[9]

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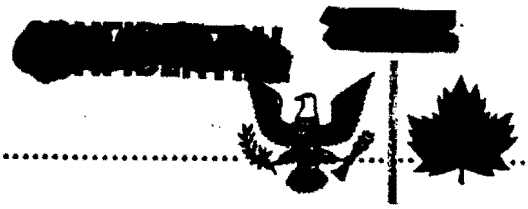


ATTACK WARNING SYSTEMS

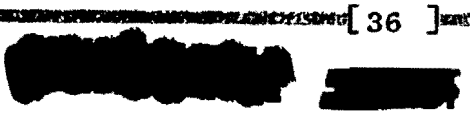
Canadian Attack Warning System. On 1 September 1959, the Canadian Army took over responsibility from the Department of National Health and Welfare for a Canadian attack warning system. The Army then proposed to NORAD the setting up of a staff in the NORAD COC at Colorado Springs and at certain NORAD Region headquarters.

NORAD replied that its COC could furnish attack warning information to Canada. But space in the COC was limited and facilities at Ent were already saturated. In view of this, NORAD asked that the Army reexamine its request for use of NORAD COC space. In a subsequent meeting with the COSC, Air Marshal C. Roy Slemon, Deputy CINCNORAD, discussed the proposals further.[10] This resulted in a decision to restudy the subject of placing a separate Army staff at Ent.

NORAD accepted the Canadian Army's proposal to establish a warning center at the 25th Region. On 21 June 1960, NORAD told the Executive Agent that this portion of the Army plan was concurred in and that direct liaison between the Army and the 25th Region would be authorized. Further, NORAD stated that it was "... prepared to offer any support required to insure the adequate accomplishment of the Canadian Army attack warning mission at region level."[11] On 29 June, NORAD advised the 25th Region of the Canadian Army requirements and directed the region to assist the Army in every way possible.

U. S. National Warning System. The changeover from manual to SAGE operation resulted, in some instances, in changes in headquarters locations and inactivations of a region or division. These changes, of course, caused a need for relocating certain OCDM warning centers or establishing new ones. But no policy existed on what space would be allocated OCDM centers.

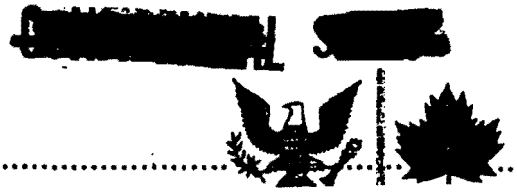
First off, ADC told its air defense forces and air divisions that they would provide space by coordinating directly with OCDM.[12] Later, ADC changed its position and asked NORAD to state a policy.



On 9 March 1960, NORAD issued the following guidance.[13] Region/division commanders would provide space, on an interim basis, agreeable to both OCDM personnel and themselves. A final determination of permanent space would be made after experience had been gained in operating the centers. There would be no construction or alterations of any buildings for OCDM until the final space was chosen.

On 31 December 1959, OCDM operated six warning centers in the U. S. A National Warning Center was located in the NORAD COC. The others were regional centers at Western NORAD Region, Central NORAD Region, and the 26th, 30th, and 32d NORAD Regions. On 1 July 1960, the number of warning centers remained at six,[14] locations also remained unchanged. But one center had been redesignated.

Concurrent with the discontinuance of WNR -- 1 July 1960 -- OCDM redesignated its Western Warning Center as the OCDM 28th Warning Center with headquarters at Hamilton AFB, California. Discontinuance of Central NORAD Region and the establishment of the 33d Region Headquarters at Richards-Gebaur AFB, Missouri, on 1 January 1960, brought no change. The Central Warning Center kept its name because the center covered an area larger than that of the 33d Region.



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SHAPE/NORAD EXCHANGE OF EARLY WARNING INFORMATION

In 1959, SHAPE and NORAD agreed that setting up communication between their commands to exchange evaluated early warning information was essential. NORAD felt this requirement could best be fulfilled by establishing a full-period telephone circuit between the NORAD COC and the SHAPE Operations Center. SHAPE thought a semi-automatic data transmission system (called Link III), which it proposed using for its internal communications network, would satisfy the requirement. However, NORAD thought that this equipment gave information in greater detail and quantity than needed. But NORAD did agree to a test of the Link III equipment over Trans-Atlantic circuits from SHAPE to NORAD because of a need for possible use of the system later.

NORAD forwarded these views to the JCS in September 1959. In March 1960, the JCS replied that they had no objections to the Link III test. They stated that the need for Link III equipment should be reviewed after a year's period to determine if enough changes had taken place in either command's warning system to warrant its use. The JCS asked NORAD for more information on establishing the point-to-point voice telephone circuit.

NORAD replied that information to be passed over the voice circuit would be unclassified, evaluated tactical information.[19] A teletype circuit would not have the capability for rapid elaboration on points in doubt on the information passed. As for funding, NORAD pointed out that it had no funding authority and that funds would have to be given by one of the military departments designated by the JCS.

In June 1960, the JCS were still studying the need for the full-time voice circuit. NORAD learned, however, that CINCEUR now supported this circuit and had urged provision of it at the earliest date.

Another development in July 1960 held some promise for getting a full-time voice circuit.[20] USAF stated

that the RAF Fighter Command at Stanmore, England, wanted BMEWS data from Sites 1 and 2. NORAD felt that the data should be provided from NORAD over a full-period voice circuit until the BMEWS site at Fylingdales, England, (Site 3) became operational. NORAD also wanted a circuit to SHAPE, multi-pointed off the RAF circuit. This would satisfy the NORAD/SHAPE requirement and make maximum use of the RAF-NORAD circuit. On 11 July 1960, NORAD asked ADC to forward this view to USAF.

The Link III equipment test was held from 6 to 9 May 1960 (21) A preliminary evaluation of test data indicated that there would be no major difficulties in sending or receiving information. A detailed analysis was in progress.

EMERGENCY CONTROL MATTERS

DISASTER CONTROL PLAN

In February 1960, NORAD issued a disaster control plan for the first time. NORAD's disaster control mission was to provide for the optimum effectiveness of the combat capability of the air defense system and air defense units under NORAD's operational control in the event of natural disaster, sabotage, or enemy attack with conventional, nuclear, chemical, biological or radiological weapons (22) NORAD's plan (Annex I to ADNAC 1-60) divided the responsibility for disaster control between component commanders and NORAD region commanders.

Component commanders were made responsible for monitoring and/or accomplishing, as appropriate, disaster control programs prescribed by their services. They were to prescribe procedures, start training, and arrange for additional equipment if service policy fell short of NORAD's criteria.

Region commanders were assigned responsibility for coordinating disaster control activities at a NORAD

facility. Where NORAD units were tenants at installations, region commanders were to review base plans to insure that participation by NORAD units in disaster control would not jeopardize their air defense capability.

ALTERNATE COMMAND POST PLAN

A new NORAD plan was issued in February 1960 for an alternate NORAD command post. The plan was issued as Annex G to NORAD/ADNAC 1-60 and superseded a NORAD plan of 25 May 1959.(23)

The 33d NORAD Region, Richards-Gebaur AFB Missouri, was designated the NORAD alternate command post.* The commander of the 33d was to activate the ALCOP when ordered to do so by CINCNORAD, or when all communications (direct or indirect, military and civil) had been cut between NORAD Headquarters and the NORAD regions. He would act in the name of CINCNORAD pending arrival of the latter or until proper assumption of command by the Deputy CINCNORAD or next eligible officer. The plan also provided that if both primary and alternate command posts were knocked out the regions would operate independently until centralized control was reestablished.

AIR TRAFFIC CONTROL

Priorities for Air Movement of Military Aircraft. On 26 February 1960, CINCNORAD issued a policy letter, based on JCS guidance, on priorities for movement of military air traffic.(24) The letter superseded interim guidance issued in December 1959 and a policy letter of 25 May 1959. The basic difference between the policies of 1959 and 1960 was an expanded list of priorities for various types of aircraft movements under each category of air traffic.

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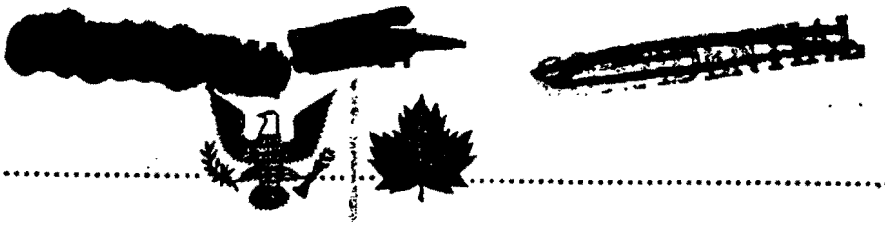
* The 33d took over from Central NORAD Region when the latter was discontinued on 1 January 1960.



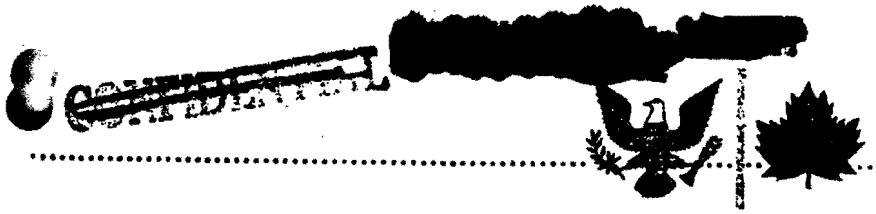
NORAD was authorized to resolve conflicts in the movement of U. S. tactical air traffic during conditions of imminent or actual war, including Air Defense Emergency. FAA had similar authority under all other conditions.

The Central Altitude Reservation Facility. Twice in 1959, NORAD representatives met with FAA representatives to study the possibility of collocating the Central Altitude Reservation Facility (CARF) at Kansas City, Missouri, with the NORAD COC to aid in controlling the movement of wartime traffic.[25] In both meetings, NORAD personnel stated they could see no requirement for CARF services during wartime nor for the movement of the facility. But NORAD said it could not make the final decision on this matter.

On 20 November 1959, FAA forwarded a request to the JCS to determine the military requirement for CARF services in wartime. The JCS, in turn, directed NORAD to determine, in coordination with FAA and commanders of interested unified and Service commands, if there was a requirement.

Representatives from interested commands met at NORAD Headquarters on 22 March 1960. The conferees agreed that the CARF service of getting the most use from available airspace during limited war and peacetime conditions was useful and should be continued.[26] As for wartime conditions, however, it was concluded that its services were not required. Among the reasons given were that the emergency war orders of military commands were not adaptable to altitude reservation concepts.

These views were forwarded to the JCS by NORAD on 28 March 1960.[27] NORAD recommended continuing CARF peacetime and limited war functions. But there was no requirement, NORAD concluded, for moving the facility into the NORAD COC since CARF could not perform a useful wartime function for EWO traffic. The JCS concurred in NORAD's recommendations on 9 May and so advised FAA.



CONELRAD AND CONILLUM

CONELRAD Alerting Boundaries. On 15 February 1960, USAF proposed that CONELRAD alerting responsibilities be based on state boundaries rather than region/division boundaries until a new alerting system could be set up using Associated Press and United Press International facilities (*28) USAF pointed out that organizational changes taking place in air defense would necessitate numerous circuitry changes if the region/division boundary concept was continued. USAF wanted to keep as many key stations as possible tied to the same region/division even though organizational changes might place them in another area. This would cut down on circuitry changes and ease administration of the CONELRAD program.

On 30 March, NORAD sent a coordinated NORAD/ADC position to USAF, concurring in the recommendation. (29) It suggested that USAF coordinate the matter with the FCC so that CONELRAD plans at region/division level could be revised. USAF replied that the FCC had been advised to coordinate with each SAGE division in revising the plans.

Time Criteria for Controlling Navigation Aid Transmitters. In January 1960, the 33d CONAD Region asked for guidance from CONAD on controlling electromagnetic radiations from navigation transmitters after receipt of a CONELRAD alert. (30) The region pointed out that the only guidance available was in a USAF message of December 1955. This stated that all transmitters had to be controlled within five minutes after receipt of an alert.

CONAD felt the time requirement was unrealistic since many of the transmitters were located in isolated areas and were not equipped with remote control devices. At the time the five-minute limitation was imposed, it had been planned to equip these transmitters with remote

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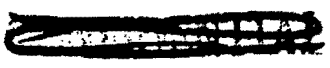
* For background on the AP/UPI CONELRAD alerting system see: NORAD/CONAD Historical Summary, July-December 1959, pp 48-49.



control devices. However, this had not been done and, in many cases, appeared too costly. CONAD suggested to USAF changing the requirement to the following: all military-necessity navigation-aids had to be controlled within five-minutes; other navigation transmitters would be controlled as soon as possible but within 30 minutes.* (31)

USAF concurred on 23 February 1960 (32) CONAD informed its regions and USAF ADC of the new criteria on 2 March.

CONILLUM. In April 1959, representatives of RCAF, DOT, the Canadian Army, and NORAD met in Colorado Springs to develop a common NORAD policy on CONILLUM (Control of Illumination). At the time of the conference, the requirement for CONILLUM was in doubt. The last guidance provided on the subject had been in a 1956 USAF message to ADC that stated: "...the Department of Defense considers that further implementation of the CONILLUM plan is unwarranted...it has been decided to retain the CONILLUM plan in a stand-by status, and its further implementation will be held in abeyance."

However, the conferees agreed that the matter should be reopened since illumination might provide assistance to infrared detectors and manned bombers making low-level attacks. Also, NORAD was directed by its Terms of Reference to coordinate with U. S. and Canadian agencies in the development of policy and plans for CONILLUM and to start implementing actions when appropriate.

The conferees decided that NORAD should refer the problem to the JCS. On 26 May 1959, NORAD asked the JCS for guidance. If CONILLUM was a valid requirement, NORAD said, appropriate guidance was needed. But if it was indicated that the program was not worthwhile, the requirement should be deleted from the Terms.

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* The latter were mostly low-power transmitters, located in difficult-to-reach areas.

On 8 March 1960, the JCS told NORAD that there was no current air defense requirement for the development of plans and policy for CONILLUM.[33] However, they said that since it was conceivable that unforseen developments might increase the importance of illumination control as a countermeasure, the requirement would stay in NORAD's Terms and NORAD would be responsible for taking part in development of any future CONILLUM plans and policy.

NORAD informed the Canadian Executive Agent of this decision on 6 April 1960.[34] NORAD said that it contemplated no further action at that time.

TRAINING AND TESTS

SAC/NORAD FIGHTER/BOMBER AFFILIATION

On 19 December 1959, NORAD and SAC told their units that, for the interim, no fighter attacks against bomber aircraft would be allowed. This order resulted from a mid-air collision on 17 December between an F-102 and a B-47 taking part in a training exercise.

The accident investigation board found that everyone concerned in joint training was not thoroughly briefed on and did not follow the procedures in training regulations. NORAD and SAC decided to publish a joint training regulation and make sure that everyone was thoroughly familiar with its contents.

On 19 February 1960, NORAD set forth the requirements that had to be met by all units involved in training with SAC.[35] Before training could be resumed, unit commanders were to make certain that everyone in the training program had a thorough knowledge of the SAC/NORAD regulation and kept abreast of any changes. To make doubly sure, NORAD said that formal instruction and written examinations would be given. Attendance at briefings to be given by a SAC/NORAD team was mandatory also. Region commanders were to monitor the indoctrination programs by sending qualified observers to each unit under their operational control.

SAC established similar requirements for its units. The joint regulation -- SAC/NORAD Regulation 51-6 -- was issued on 26 February 1960.

On 12 April 1960, CINCNORAD personally assured CINCSAC that, with the exception of picket ship controllers in the 26th NORAD Region and some augmentation personnel, all units under his operational control had completed the indoctrination.[36] SAC and NORAD authorized the resumption of joint training effective 0001Z, 18 April.

POLICY ON TEST APPROVAL

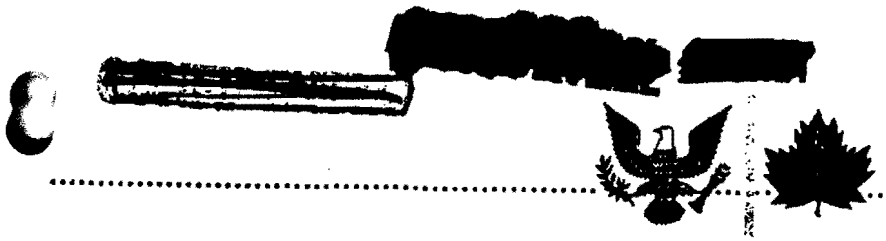
In February 1960, NORAD established a policy requiring approval for use of the air defense system, or portions thereof, for operational tests.[37] The regulation (NORADR 55-15, dated 26 February 1960), superseded a CONAD regulation of May 1957.

NORAD provided that tests in the system had to be approved by a NORAD commander and CINCNORAD advised. Approval was to be obtained as follows. NORAD region, division, and sector commanders could approve tests originating within their commands. Region commanders were to inform CINCNORAD of the nature, scope, and dates of these locally-approved tests. Tests of a minor nature, of purely local interest, and which would not affect NORAD's defense requirements, did not have to be reported. Any tests proposed by an agency outside of NORAD had to be submitted to CINCNORAD for approval. NORAD forwarded a copy of the regulation to the JCS and recommended that they advise the Service Departments of NORAD's policy.

POLICIES ON FRIENDLY FLYING OBJECTS RESPONSIBILITY

PROTECTION OF FRIENDLY FLYING OBJECTS

On 12 March 1959, NORAD recommended to the JCS and COSC that they establish a policy to provide that all



launchings of objects within the airspace over the NORAD area of responsibility be coordinated with NORAD Headquarters. This was needed, NORAD felt, so that there would be no false alarms in the air defense system or in other agencies and commands to which NORAD provided warnings.

The COSC notified NORAD on 21 April 1959 that the recommendation had been approved in principle. It asked that a draft regulation on the matter be forwarded for final approval. USAF, acting for the JCS, asked for specific requirements and notification procedures.

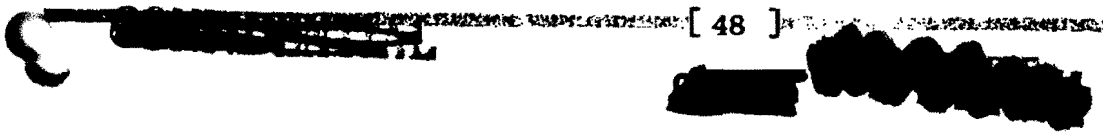
But after further investigation, NORAD concluded that existing procedures were adequate for the immediate future.[38] The air defense system could not, at the time, track U. S.-launched ballistic missiles except at launch and immediately thereafter. Air breathing missiles launched within or into controlled airspace were required to operate on flight plans the same as manned aircraft. Balloons launched by U. S. agencies were reported by FAA procedures which met NORAD requirements. Balloons launched from overseas areas had to be re-identified by visual observation because of the difficulty in predicting when they would penetrate the contiguous radar areas.

In view of these facts, on 29 January 1960, NORAD told the JCS and COSC that it would hold up on its recommendation until the air defense system improved. Later, it might become necessary to establish more detailed coordination and reporting procedures.

DESTRUCTION OF FRIENDLY UNMANNED AIRBORNE OBJECTS

On 29 April 1960, NORAD issued a policy statement on destruction of friendly unmanned airborne objects (i.e., balloons, derelict aircraft, drones, and other types of unmanned vehicles), in NORAD Regulation 55-29.[39]

Responsibility for recovery or destruction of unmanned friendly airborne objects, NORAD said, was the function of the agency launching the object. But requests might be made of NORAD unit commanders to destroy hazardous objects. Upon receipt of a request,



or when it was determined that an object should be destroyed, NORAD commanders were to request authority for destruction from CINCNORAD through operational channels.

In cases of extreme emergency, when there was not enough time to get CINCNORAD's approval, NORAD commanders could direct destruction using air-to-air non-nuclear weapons only. This authority could not be redelegated.' Simultaneously with this emergency action, CINCNORAD was to be notified. Destruction of objects without recourse to CINCNORAD was allowed only when it was planned as a part of a training or test program and the object was within the boundaries of a range.

CHAPTER 4

The Surveillance System

STATUS SUMMARY

As of 30 June 1960, the operational land-based portion of NORAD's surveillance system (less the Mid-Canada Line and the DEW Line and its extensions) consisted of 184 prime and 137 gap-filler radars. Eighteen of the heavy radars were in Alaska. Thirty-four heavy radars and six gap fillers were in Canada and 131 heavy radars and 131 gap fillers were on the U. S. mainland. The remaining heavy radar was at Thule, Greenland.

The Mid-Canada Line had 90 doppler detection stations and eight section control stations. The DEW Line, less its extensions, consisted of 57 radar stations extending from Cape Lisburne, Alaska, to Cape Dyer, Baffin Island. The Aleutian Extension contained an additional six stations.

In addition to these land-based radars, NORAD forces operated ten picket ship stations (five off each coast), seven AEW&Con stations (four off the West Coast and three off the East Coast), and three Texas Towers off the East Coast. This coverage was supplemented by 8.5 aircraft stations in sea barriers (four in the Atlantic and 4.5 in the Pacific) operated by the Navy as extensions to the DEW Line.

GAP-FILLER RADARS

GENERAL PROGRAM AND REQUIREMENTS

As shown in Chapter One, in a letter dated 9 June, USAF said it was tentatively maintaining a program of 93 new gap fillers (including 45 in CADIN), but this was

being held in abeyance until the final number required was settled. The USAF guidance was prior to final Congressional action on Bomarc.

But settlement of the Bomarc program was not the only matter to be considered in the gap-filler requirement. There were a number of other questions which left the gap-filler program unsettled at mid-year. For one thing, on 20 April 1960, NORAD had proposed reducing the coverage requirements forward of Bomarc B bases from 230 nautical miles to 180 nautical miles.(2) USAF had not agreed to this reduction, however, and still wanted the 230 nm coverage approved in August 1959.

In addition to this matter, NORAD issued on 17 June a new criteria for low-altitude coverage. One point of this was that coverage was to be based on flyable terrain rather than simply above terrain.(3) Another point was establishment of priorities and specific areas for coverage.

In this 9 June letter, USAF had directed ADC to prepare a gap-filler deployment plan. This was submitted on 8 July.(4) ADC's plan was developed on the basis of NORAD's concept of defending only the most vital areas and the new criteria for low altitude coverage, including the above-flyable-terrain plan.

ADC said that its 8 July plan covered gap-filler requirements for the U. S. only. RCAF had advised that gap-filler requirements for Canada could not be provided at that time and only the 45 CADIN gap-filler radars were considered firm. However, RCAF had estimated that about seven additional gap fillers would be needed to meet either the 180 nm Bomarc B forward coverage requirement of NORAD, or the USAF 230 nm requirement.

At any rate, for the U. S. only, to satisfy the NORAD coverage criteria, ADC said that 150 gap fillers would be needed. ADC provided lists of what it considered necessary in the way of deletions, additions, and relocations. But ADC advised that until further field surveys were made, nothing was firm but the deletions,

including the total requirement. So the gap-filler requirement remained uncertain.

A further matter to be considered was whether to buy new FPS-63 gap-filler radars to replace existing sets or to improve the current gap fillers by modification. ADC stated that both it and NORAD wanted to improve all gap fillers in the system. But funds for the gap-filler program would not buy enough of the new AN/FPS-63's to replace all existing gap fillers, so it would be necessary to replace some and improve the rest.

The idea of modifying the old radars instead of buying new ones had been discussed by ADC and NORAD in June 1960. They concluded that the purchase of 93 FPS-63 type radars was not the best method of fulfilling NORAD's low-level-coverage requirements.(5) More radars, for the same amount of money, might be had by modifying the FPS-14/18's. Radars in stock or those made excess by the new gap-filler criteria could then be used. The rest of the radars in the system could get the same modification and NORAD would have one standardized, improved radar.

NORAD suggested to USAF on 27 June 1960 that the possibility of using a modified radar be explored.(6) NORAD said that if the modification was not feasible, then USAF should see if the money could be used to buy a new radar that was less expensive than the FPS-63. NORAD also asked that it be told of any changes that might be made in the FPS-63 specifications that would cut the cost and still meet NORAD's needs.

At mid-July 1960, USAF directed ARDC to have the Air Force Command and Control Development Division study low altitude detection and recommend a way to meet CINCNORAD's requirements.(7) As a guide, USAF said that the maximum number of gap fillers in the system would be 209 and the minimum 150. All radars were to have the same operational capability, be able to remove excess data, track in an ECM environment, and have a maintenance reliability similar to the FPS-63. There was a total of $30.25 million for gap fillers, USAF continued, and this could be considered as the maximum limit for procurement and/or modification.

[redacted]

AN/FPS-36 RADARS AS INTERIM GAP-FILLERS

In October 1957, ARADCOM proposed to relocate some of its AN/FPS-36 radars to get better coverage against low-altitude targets. NORAD agreed to the relocation, provided the radars were placed where they would contribute to the overall surveillance system. NORAD laid down the following guidance for locating and integrating the FPS-36's. They were to be sited to temporarily fill gaps in the surveillance system and when USAF ADC radars covered the gaps, the FPS-36's would be withdrawn. Other FPS-36's might be required to assist Nike acquisition radars rather than augment the system. FPS-36 back-up capability might, if feasible, be kept for Nike defenses within the resources allocated to ARADCOM, after the programmed surveillance system was completed.

This guidance was modified in September 1959 to provide that FPS-36's would be used only where the Air Force was delayed extensively in providing gap fillers. No FPS-36's would be used as interim gap fillers if final gap-filler coverage had not been programmed. And no approval would be given to use any FPS-36 unless at least six months or more operational use could be obtained.

By the end of 1959, NORAD had approved integration of 20 FPS-36's for use as interim gap fillers. Eight of the radars were properly located and could be integrated immediately. The remaining 12 were to be relocated to avoid duplicating coverage from Air Force radars and to provide the best coverage.

NORAD planned to tie the interim gap fillers into SAGE, using teletype inputs. Equipment to provide the data automatically was considered too expensive for the temporary use of the radars. Yet no test or operational experience was available to show that the manual inputs could be used at SAGE DC's. So NORAD asked all interested parties to hold up on deployment until a test could be held to find out whether data from the radars could be used.

The test was held in the Chicago SAGE Sector where the FPS-36 radar at Argyle, Wisconsin (CM-1), was tied into the sector DC through the Chicago AADCP by teletype. The test began on 6 April 1960 and was suspended on 18 April.[8] The gap fillers could not be used in SAGE operations. The following was found:

(1) very low targets could not be picked up by the FPS-36;
(2) the accuracy in estimating speeds, headings and altitudes at the FPS-36 was very poor;
(3) track handling capacity of the radar was insufficient;
(4) additional personnel would be needed at the SAGE manual inputs room to use the radar data; and
(5) extensive backtelling was required to acquire targets designated from the DC.

Following the test, NORAD decided to cancel its requirement. This decision was sent to the JCS on 17 June and to ADC, ARADCOM, and the NORAD regions on 22 June.[9] NORAD released all but two of the FPS-36's from their interim gap-filler mission. The two FPS-36's providing data to the NCC at Fort George G. Meade, Maryland, were kept, pending recommendations from the NCC commander and the 26th Region commander.

CANADA

FREQUENCY DIVERSITY RADARS IN OTTAWA SECTOR

On 24 February 1960, NORAD asked the Canadian Executive Agent to approve a requirement for, and take action to deploy by 1964, S-band frequency diversity radars at two sites in the Ottawa Sector.[10] There was to be a total of ten radars in the sector. Eight were already in; two more were programmed. But only one of the ten sites was currently programmed to receive an FD radar: Ramore (C-10), which would get an AN/FPS-27.

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NORAD initially wanted six of the sites to get FD radars in the Ottawa Sector. But now, only two more were requested because of the reductions in the FD program, for a total of three. NORAD said that unless these two additional radars were supported, the most critical targets in Canada and one of the critical avenues of approach to the U. S. would not be covered by adequate radar frequency diversity.

The Executive Agent replied on 13 May 1960 that while it agreed in principle, another Canadian radar improvement program could not be supported and a calculated risk in the Ottawa Sector would have to be accepted.[11] It was the Executive Agent's contention that all future radar programs should be aimed toward providing missile defense rather than manned bomber defense.

ADDITIONAL RADARS FOR EASTERN MID-CANADA LINE

In May 1960, NNR suggested adding radar in the northeastern area along the eastern section of the Mid-Canada Line. NNR said that if it was recognized that an air-to-surface missile threat existed, it was clear that with present and planned radar cover, the minimum intercept line of the fighters was behind the bomb release line.[12]

To provide more coverage, NNR proposed the following. First choice was to add two new AN/FPS-24 frequency diversity radars at Winisk and Knob Lake. If this was not possible, NNR wanted to take part of the radars programmed for Western Canada in the CADIN program and move them to the east. Five radars were programmed for western Canada in this program. Three were to get FPS-27's and two were to get FPS-7's. NNR wanted to shift the two FPS-7's to Winisk and Knob Lake. If neither proposal could be supported, NNR wanted FPS-20's deployed at Winisk, Knob Lake, and Great Whale.

NORAD concurred in principle, but would not support any program until final decisions were made on the aircraft and Bomarc programs.[13] NORAD said further that it wanted to continue to program five radars for western

[redacted]

Canada. On 5 July, Air Vice Marshal William R. MacBrien, NNR Commander, stated that he did not feel the matter should be based on decisions on the weapons programs and urged that every effort be made to implement his recommendations.(14)

On 19 July, NORAD reaffirmed the requirement for the five western radars and again agreed in principle to the requirement for additional radars along the eastern MCL.(15) NORAD said it might be possible to deploy three FPS-20's from U. S. resources. It would support a requirement for three FPS-20's if they could be justified on a cost/effectiveness basis and be deployed without jeopardizing the program for the five western radars.

MID-CANADA LINE OPERATIONS ORDER

In March 1960, NORAD issued an operations order for the Mid-Canada Line (NORAD Operations Order 2-60). This order replaced the MCL portion of the USAF-RCAF Operations Plan, dated 1 June 1956.(16)

The mission assigned the MCL was to identify inbound airborne objects penetrating or operating within the MCL Identification Zone (MIDIZ) and to provide NORAD commanders with information on these objects. The Northern NORAD Region Commander was to exercise operational control of the MCL and insure that identification and early warning functions were carried out in accordance with CINCNORAD's order. He could delegate this responsibility to NNR division commanders for those segments of the MCL in their areas.

The Air Officer Commanding, RCAF ADC, was responsible for providing RCAF personnel for the operations functions at seven of the eight section control stations, civilian manning of the entire line, and logistic support of the line. He was to coordinate with the Goose NORAD/CONAD Sector to insure satisfactory USAF manning of the remaining SCS.

Shortly after the order was issued, NNR informed NORAD of some changes it wanted to make. NNR wanted all reference to NNR subordinate organizations to be deleted. It

wanted to issue its own supplement to the order, delegating to its divisions/sectors operational control over applicable portions of the line.[17] NNR also wanted to be able to delegate responsibility to the 25th and 30th NORAD U. S. Region Commanders for insuring that air defense readiness and warning conditions were passed by them to appropriate SCS's.

On 1 June 1960, NORAD agreed to all but the final proposal. NORAD told NNR that although the NNR commander had operational control of the line, delegation of authority to the NORAD U. S. regions should come only from NORAD. However, NORAD continued, since NNR concurred that the 25th and 30th regions should pass readiness and warning conditions to the SCS's, this would be stated in a revision to the order. NNR concurred on 13 June and recommended early issuance of the amendments.

GROUND OBSERVER CORPS

On 2 May 1960, Mr. George R. Pearkes, Canadian Minister of National Defence, announced that effective 1 June 1960 the portion of the Canadian Ground Observer Corps (GObC) located south of the 55th Parallel was to be disbanded.[18] Posts north of this line were to be kept to supplement the DEW and Mid-Canada Lines and to assist in search and rescue operations.

Some 30,000 active field volunteers and 4,000 observation posts would be released from duty. Approximately 700 posts and 2,500 active field volunteers north of this parallel would remain.

The Canadian GObC had been formed to assist the Canadian air defense system* in providing low level coverage and early warning. It had played an important part in this role since 1951. But by 1960,

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* The U. S. GOC was inactivated on 31 January 1959.

improvements to the radar system in the southern half of Canada had removed the need for the corps in that area.

CONTIGUOUS SYSTEM

AEW&C OPERATIONS

NORAD's requirement for seaward extension operations was five AEW&Con aircraft stations and five picket ship stations off each coast. All ten picket ship stations were being manned. Manning of the aircraft stations was less successful.

In December 1959, ADC asked for NORAD's guidance on manning the aircraft stations. ADC said it could support only seven and one-third stations with the aircraft deployed seaward of the picket ships (19) after each wing had been modified with Airborne Long Range Radar Inputs (ALRI) equipment and the aircraft moved shoreward, an additional station could be maintained. ADC stated that temporary relief might be gained by moving the aircraft stations shoreward immediately. NORAD replied that stations seaward of the picket ships would be manned until the planes were equipped with the APS-95 radar. However, it did establish station priorities for use in manning less than ten stations.*

In April 1960, ADC told NORAD that it expected further cuts in West Coast station manning for FY 1961 (20) A reduction in manpower at the Sacramento Air Materiel Area was expected to lower support to the 552d Wing.

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* Stations 4, 6 and 2 on the East Coast were to be manned as first, second and third priority. Stations 3, 9, and 7, on the West Coast, were priority four, five and six. Priority seven and eight went to East Coast Station 8 and West Coast Station 5. Priority nine and ten was East Coast Station 10 and West Coast Station 1.

[redacted]

Because of this, the flying time for each aircraft was expected to drop from 183 to 157 hours per month. These hours, ADC said, would provide less than three and two-thirds stations even if the stations were moved shoreward.

Western NORAD Region also told NORAD of this problem and asked for support in getting flying hours to man four stations. Anything less, the region said, would leave an unacceptable gap in coverage.

On 6 June, NORAD told ADC that the 552d should be given additional flying hours if this could be done without conflicting with NORAD's priority system. On 30 June 1960, the 552d was manning four stations in the West Coast system and the 551st on the East Coast was manning three stations.

But on 30 June, ADC told NORAD that effective 1 July 1960, the 552d would be able to man only a little over three and one-third stations. This level would be maintained through February 1961. The 551st Wing could man only three and two-thirds stations through February 1961.(21)

AEW&C AIRCRAFT IMPROVEMENT

There were two improvement programs to provide RC-121's with a better capability to perform their mission. One was to install an improved search radar -- the AN/APS-95. The other was to make the aircraft compatible with SAGE operations. The latter program required, among other things, installation of an airborne data processor and a time division data link transmitter.

Replacement of the AN/APS-20 radar with the AN/APS-95 was being accomplished in Lockheed's east and west coast plants.(22) The first aircraft from both wings entered their retrofit depots in March 1960. The final aircraft were to return to the 552d (West Coast) in January 1961, and to the 551st two months later.

By August 1960, 12 planes had been equipped with

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the APS-95 -- four on the East Coast and eight on the West Coast. On the West Coast, the 552d was manning one station full-time with the modified aircraft. The 551st was using its four modified aircraft on Stations 8 and 10.

Meanwhile, the program to make the AEW&Con fleet compatible with SAGE had been cut back considerably. NORAD's ALRI objective was for ten stations (five off each coast). In March 1960, USAF told NORAD that Air Force resources were adequate for conversion of ~~only~~ one wing (35 aircraft) to the ALRI configuration.[23] Since Bomarc would be installed only on the East Coast and ALRI had been designed with control of Bomarc as a principle purpose, it was decided to man only the East Coast stations.

The decision to modify only 35 aircraft had a second effect on the ALRI program. ADC told NORAD that it would be unable to man more than four stations with the programmed resources. In effect, the ALRI program had been reduced from ten to four stations.

In June 1960, the Air Force Command and Control Development Division recommended cancellation of the entire ALRI project. This agency stated that the range capability of the APS-95 was inadequate to exploit the range and altitude capability of air defense weapons. It said also that it was doubtful if there was money to test ALRI with Bomarc B, and without testing "true integration of ALRI into the air defense mission system is impossible."[24]

ADC refused to accept the recommendation. It told AFCCDD that the need for seaward extension of the early warning area and weapons employment was a high priority requirement. ADC said that ALRI was the only system nearing an operational status that could satisfy this requirement.

As of July 1960, the program had not been cancelled. The retrofit schedule for the 35 aircraft of the 551st Wing called for two research and development aircraft to be available in January and March 1961.[25] The

[redacted]

first aircraft for tactical use was to be ready by May 1961 and the final one by February 1962.

SEAWARD EXTENSION OPERATIONS PLAN

In February 1960, NORAD issued a seaward extension operations plan (Annex F to ADNAC 1-60), superseding CONAD Operations Plan 9-57, dated 1 August 1957, and the portions of a CONAD plan, dated 20 June 1955, still in force (22)

NORAD established criteria in the plan for employment of the seaward elements in the current configuration and after the AEW&Con fleet got the new APS-95 radar. Until the aircraft received the APS-95, they were to remain seaward of the picket ships to extend surveillance and early warning. Picket ships were to be deployed to provide coverage contiguous with the shore-based radar or Texas Towers at 20,000 feet and above.

After the aircraft were refitted, they were expected to have an increased low-altitude capability. And once enough qualified weapons directors became available and a full intercept control capability was realized, the aircraft were to be moved shoreward. They would be deployed to provide radar coverage contiguous with the shore-based radars or Texas Towers at 500 feet and above. This was expected to provide low level coverage some 200 miles from shore. When the aircraft were moved shoreward, the picket ships were to be moved seaward to provide radar coverage contiguous with the aircraft at 20,000 feet and above.

NORAD recognized that some gaps would exist in low level coverage in both deployments. To increase the probability of low level detections, NORAD said that the gaps would be shifted by using a synchronized patrol whenever weather and sea conditions permitted.

The exact geographic locations of the stations were to be set by NORAD region commanders in accordance with NORAD's criteria and area priorities in this same plan

[redacted]

(ADNAC). Once these stations were established, only temporary adjustments during periods of emergency could be made without NORAD's approval.

WITHDRAWAL OF THE NAVY'S ZW-1

On 18 December 1959, NORAD concurred in a CNO proposal to withdraw the lighter-than-air component of the contiguous system in FY 1961, since there was no long term requirement for blimps in air defense. This was Airship Airborne Early Warning Squadron One (ZW-1). NORAD further agreed to a cut in flying hours from 288 to 215 per month for the remainder of FY 1960.

On 1 July 1960, after three years of operating in the contiguous system, the primary mission of the airship squadron was changed from air defense to anti-submarine warfare.* Air defense was kept as a secondary mission.

MISSILE DEFENSE

BALLISTIC MISSILE EARLY WARNING SYSTEM

Background. In January 1958, the Secretary of Defense authorized the Air Force to implement a ballistic missile early warning system of three stations, one each in Alaska, Greenland, and the British Isles, and a ZI display facility and connecting communications. But in May 1958, USAF announced that installation of the British Isles station was to be deferred. Also, a reduced or interim configuration was necessary for the other stations to meet a fund ceiling. This configuration would provide four detection radars (AN/FPS-50) and two tracking radars

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* ZW-1 was commissioned on 3 January 1956 at NAS Lakehurst, New Jersey. It remained in a training status until 1 July 1957 when it was declared operationally ready and assumed an air defense commitment.

(AN/FPS-49) at Site 1, Thule, Greenland; three detection radars and two trackers at Site 2, Clear, Alaska; and three trackers only at the British Isles site (Site 3).

USAF set operational dates as follows: Thule detection radars - September 1960, trackers - September 1961; Clear detection radars - September 1961, trackers - December 1961.

Following this, in May 1959, USAF reduced implementation of the interim configuration to detection radars only for Thule and Clear and trackers for Site 3. NORAD objected to deletion of trackers from Sites 1 and 2 to both USAF and the JCS. USAF replied that the interim configuration would be attained, but on a two-phase basis; trackers would be added later. The Director of Defense Research and Engineering, Dr. Herbert F. York, advised that a final decision had not been made on the ultimate BMEWS configuration and CINCNORAD's views would be considered in making the technical recommendations.

On 14 September 1959, this office of Defense Research and Engineering had authorized the Air Force to implement the third BMEWS site.

Meanwhile, a decision was being made on the equipment for an interim BMEWS central facility (interim in the sense that the ultimate facility was expected to be in a new, hardened COC). Authorization to proceed with an interim facility had been given by USAF in March 1959, but was cancelled at mid-year because of a need to reexamine the requirements.

In July 1959, USAF told the BMEWS Project Office to prepare an engineering proposal for a facility at Ent Air Force Base, not requiring additional construction. One of the configurations recommended by this office, using the Fenske, Federick and Miller Company Iconorama display equipment, was approved for implementation by the Office of the Director of Defense Research and Engineering on 14 September 1959.

A descriptive specification prepared by the BMEWS Project Office recommended that the Iconorama display equipment be installed and Radio Corporation of America provide data display processing equipment and other electronic hardware needed to complete the interim facility. USAF approved the descriptive specification on 14 October 1959. No new construction was authorized other than modification of the current COC building. Only a simplex data processing facility was approved. Initial operational capability was set for September 1960.

Sites I and II. In a memorandum to the Air Force, dated 16 June 1960, the Director of Defense Research and Engineering concurred with recommendations to provide a single tracking radar at Sites 1 and 2 when the Air Force was satisfied that testing of the equipment showed a satisfactory reliability.[28] On 4 August 1960, USAF advised the Air Materiel Command and other interested agencies that it approved immediate implementation of a tracking radar at Site 1 (Thule).[29] Fund limitations would delay ordering a tracking radar for Site 2 (Clear).[30]

The initial operational capability of the detection radars at Thule was scheduled for September 1960. The IOC date for the Clear site detection radars had been September 1961. However, it was decided by the Department of Defense and the Air Force to accelerate the latter date by about three months. In April, NORAD was informed by ADC that Site 2 was to achieve an IOC by 30 June 1961.[31]

Site III. On 22 January 1960, USAF advised that negotiations had been successfully concluded on Site III, which was to be at Fylingdales Moor, Yorkshire, England.[32] A formal agreement was signed on 15 February 1960.

At mid-1960, the IOC for the three tracking radars at Site III was set for April 1963. However, the feasibility of advancing this date was being studied. Since Site III was a joint U. S. - U. K. venture, acceleration required agreement between the two. In the

memorandum mentioned above from the Director of DR&E to the Air Force on 16 June, it was indicated that the Secretary of Defense had started discussions with the British Minister of Defence toward this end.

In May, the matter arose of how to provide ballistic missile early warning information to England prior to the operational date of Site 3. The Third Air Force forwarded to USAF and NORAD the information sent in a letter by the British Air Ministry to the Third Air Force. The Air Ministry pointed out that it was probable that an attack would include ICBM's against both England and the U. S.[33] BMEWS Sites 1 and 2 could provide early warning of such an attack, but under current planning such information would not be available to England until Site 3 was connected to the BMEWS transatlantic communications system. But the Site 1 and 2 information could be passed over the existing NORAD/RAF fighter command circuit. Therefore, the Air Ministry asked that USAF give consideration to making available Site 1 and 2 information prior to completion of Site 3 and to the use of this NORAD/RAF circuit.

USAF asked ADC and NORAD to comment, considering in so doing that the propriety of providing BMEWS information to the RAF was clearly established in the negotiations for Site 3 and that an EMC voice circuit was not suitable because of the time required for activation and testing.[34] NORAD told ADC that its position was that until Site 3 became operational the RAF Fighter Command at Stanmore, England, should be provided BMEWS information from NORAD over a full period voice circuit.[35] After Site 3 became operational, alarm level data would be transmitted automatically to this site and a stand-by voice channel would also be available. At that time, there would no longer be a requirement to send BMEWS information to the RAF Fighter Command.

MIDAS AND SATELLITE DETECTION AND TRACKING SYSTEM

Another missile attack warning system was MIDAS (Missile Defense Alarm System). MIDAS originated as an

infrared subsystem of USAF WS-117L, the entire advanced reconnaisance program which included SAMOS and Discoverer. Back in April 1958, NORAD first recommended that this infrared detecting system be developed on an accelerated basis and be put into production as soon as feasible. Again in December 1958, NORAD urged that development of this system be treated as a matter of the highest urgency. NORAD reaffirmed the requirement in March 1959 in a letter to the JCS and sought assignment of operational control.

MIDAS was for a time under the Advanced Research Project Agency, but in November 1959 was transferred to the Air Force. When the Secretary of Defense transferred MIDAS, he directed the Air Force to prepare an operational plan for it; USAF in turn directed ADC, SAC and AFBMD to submit a plan. ADC asked for informal NORAD comments on the plan in March. NORAD replied that it concurred with the fundamental concept that operational control of MIDAS would be exercised by CINCNORAD under the strategic direction of the JCS.[36] But NORAD said that detailed comments would be inappropriate until it had been assigned operational control. These comments were forwarded by ADC to USAF.[37]

Both NADOP 61-65, November 1959, and NADOP 62-66, March 1960, carried a requirement for MIDAS.

Meanwhile, NORAD had also been trying to obtain operational responsibility for a satellite detection and tracking system. In November 1958, in May 1959, and in April 1960, NORAD had urged the JCS to take action to have NORAD designated as the agency to operate a space surveillance control center.[38]

In a letter dated 29 June 1960, CONAD reaffirmed to the JCS its requirement for assignment of operational responsibility for both MIDAS and Spacetrack. Among the reasons listed by CONAD for this requirement were the following:[39]

> The expanding nature of the threat has materially reduced the time available for decision to alert the nation and to take defensive and retaliatory action. Our very

> survival may depend upon our ability to make vital decisions in a matter of minutes. To accomplish this, it is mandatory that all air and space be under continuous surveillance, reporting to a single responsible commander who can correlate, evaluate and establish the credence of complementary sensor and intelligence information. ... Time will not permit the conferencing of more than one agency to determine the existence and proximity of attack on the country. Therefore, all sources of early warning information must be integrated and under the control of one responsible commander who can provide the appropriate alarm to military commands and government authorities.

CONAD concluded that CINCONAD, by extension of his current capability, was the most logical commander to be charged with the responsibility for air and space defense, i.e., the mission of CINCONAD should be conceived to be in space as well as in the sensible atmosphere. CONAD recommended that its concept of early warning be approved by the JCS and that it be assigned operational responsibility for future air and space warning systems, such as MIDAS and Spacetrack, at the earliest practicable date.

Shortly after this letter was sent by CONAD, CINCNORAD asked the JCS to expand the concept and requirement to encompass NORAD and not restrict it to a purely CONAD, U. S. endeavor.[40] All references in the letter were to be changed from CINCONAD and CONAD to CINCNORAD and NORAD.

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CHAPTER 5

NORAD Weapon Force

STATUS SUMMARY

On 1 July 1960, the operational weapons force available to NORAD consisted of 55 fighter-interceptor squadrons, four BOMARC missile squadrons and 270 Nike missile batteries.(1) This was a gain of two BOMARC squadrons and 12 Nike missile units over the December 1959 operational force.* This was also 12 fighter-interceptor squadrons and three Skysweeper batteries less than the December 1959 force.

In addition to the regular force, NORAD had available an augmentation force on 1 July of 102 aircraft squadrons, or their equivalents, aircraft of four training wings (two owned by TAC and two by ATC); and six Nike Hercules batteries (provisional).

REGULAR FIGHTER-INTERCEPTOR FORCE

USAF ADC

Force Status. On 1 July 1960, the USAF Air Defense Command had 44 fighter-interceptor squadrons equipped with aircraft (and two others with no aircraft), 12 fewer equipped squadrons than had been available on 31 December 1959.(2) The twelve squadrons lost from the force in 1960 were inactivated. They included four F-86L squadrons, four F-102 squadrons, three F-104 squadrons, and one squadron of F-89J's.(3)

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* See explanation on page 74 of the Bomarc force and page 75 for the numerical strength of the Nike force.

[redacted]

NORAD OPERATIONAL INTERCEPTOR FORCE 1 JULY 1960

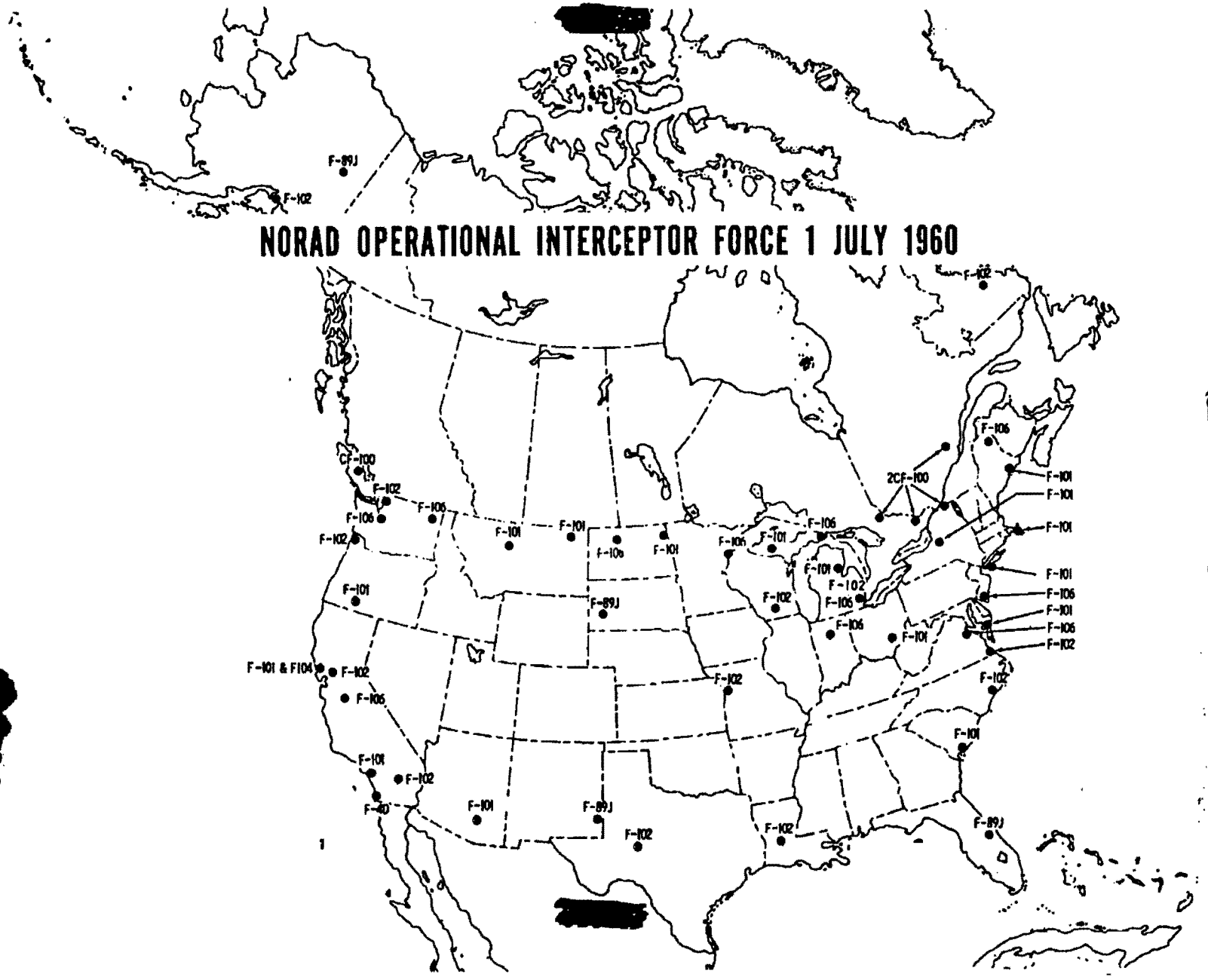

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TABLE 3

SQUADRON	BASE	TYPE AIRCRAFT	EFFECTIVE DATE OF INACTIVATION
14th	Sioux City	F-86L	1 April 1960
37th	Ethan-Allen	F-102	1 May 1960
47th	Niagara	F-102	1 July 1960
56th	Wright-Patterson	F-104	1 March 1960
86th	Youngstown	F-86L	1 March 1960
93d	Kirtland	F-86L	15 July 1960*
321st	Paine	F-89J	1 March 1960
323d	Ernest Harmon	F-102	1 July 1960
327th	Thule	F-102	25 March 1960**
337th	Westover	F-104	15 July 1960*
465th	L. G. Hanscom	F-86L	15 March 1960
538th	Larson	F-104	1 July 1960

* Authority to release these two units was not granted by USAF until the above date. However, the 93d had lost all its aircraft by 8 June 1960; the 337th lost its aircraft by 15 June 1960.

** Aircraft departed Thule for the ZI on 15 March 1960.

One other unit, the 61st at Truax equipped with F-102's, was to inactivate on 25 July 1960. It had been released from its alert commitment on 15 June.

ADC's squadrons were continuing to convert from old to new aircraft. By 30 June, all of the F-86L's had gone, only one squadron of F-104's was left, and only three F-89J squadrons remained. Arriving in greater numbers were the F-101 and F-106. By this date, ADC had 16 F-101 and 11 F-106 squadrons. ADC also had 13 F-102 squadrons.

Problems in Converting to the F-101 and F-106. Squadrons with these aircraft were going through, as one NORAD officer put it, "growing pains." As of February

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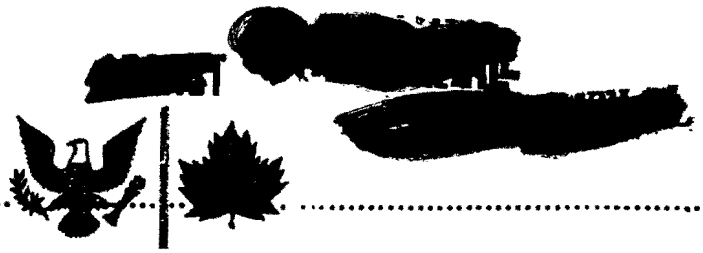


1960, no F-101 or F-106 unit had attained, on a constant basis, a minimum standard of combat readiness because of equipment, maintenance, or training problems.

To help in the training problem, NORAD waived part of its alert requirement in February 1960. Region commanders could waive the requirement for F-101 and F-106 squadrons to arm nuclear-capable aircraft on one-hour alert during duty hours when squadron training was in progress. This waiver was effective until the majority of these units attained a C-1 combat capability rating as defined in USAF Regulation 55-83.

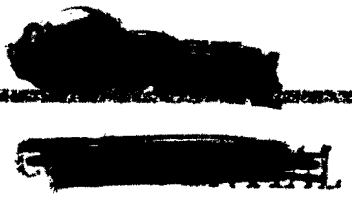
However, of the two aircraft, better progress was being made with the F-101, although not yet satisfactory at mid-year. As of 29 June 1960, only five of the 16 F-101 squadrons had attained a C-1 rating.[5]

There was progress, however. Improvement in maintenance skills, completion of some modification programs and technical order compliance, and improvement in delivery of support equipment and spare parts was being realized.

The F-106 was worse off. In March, ADC reported to USAF that the low capability of the F-106 squadrons was degrading the overall air defense posture.[6] NORAD was so concerned that on 15 April 1960, it asked ADC if it could help get the squadrons combat ready.[7] It asked ADC what was being done and when 65 per cent combat readiness would be achieved.

ADC replied that combat readiness would improve when certain modification programs were completed. The best estimate for achieving a 65 per cent level was July 1961.[8] USAF and AMC were fully aware of the problems, ADC continued, and were giving full support. All possible materiel actions had been initiated and no action by NORAD was recommended.

Restrictions on flying the F-106's during inclement weather would be lifted, ADC said, after modifications to the communications-navigation equipment. These modifications had top priority. Except for installation of



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Tactical Air Navigation Equipment, they would be completed by January 1961. The TACAN modification program would be completed by September 1961.

Another program would standardize the MA-1 electrical power system so aircraft from one F-106 base could be turned around at another F-106 base -- something that was not possible at the time. This program would begin on 1 January 1961 and be 80 per cent complete by October 1961.

The July combat ready average for the F-106 squadrons was 48 per cent.

ALASKAN INTERCEPTORS

As of 30 June 1960, the Alaskan Air Command had two interceptor squadrons, the 317th with F-102's at Elmendorf and the 449th with F-89J's at Ladd. It had been planned that the 449th would convert to F-101B's and AAC would continue to have two squadrons. But the program for Alaska was cut to one squadron.

When NORAD got USAF's revised program in March 1960, it recommended that the F-101B squadron be moved to the U. S. mainland, leaving only the F-102 squadron. CINCNORAD told the Alaskan NORAD Region Commander that this would reduce the region capability ~~to~~ an early warning and identification function only.? But there was no choice with the limited resources provided.

CINCAL replied that this would leave Alaska with a dangerously weak posture for even the limited function proposed by CINCNORAD. But if only one squadron was provided, he wanted it to have more aircraft than currently authorized. The F-102 squadron, the 317th, had been augmented in 1958 to 33 aircraft.

In the meantime, on 5 May 1960, USAF told AAC of the program change. USAF said the 449th would ~~keep~~ its F-89J's until it was inactivated in August 1960.? It asked that AAC prepare an alert concept for use by the 317th in defending Alaska.

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AAC replied that the 33 F-102's in the 317th could not possibly provide the alert force needed. To provide evaluated early warning to NORAD, a minimum of air defense, and support for SAC's Emergency War Order, an identification force for at least four areas -- Elmendorf, Eielson, Galena, and King Salmon -- was needed. The 33 aircraft could support an alert force for three areas at most. AAC proposed adding 15 F-102's to bring the squadron UE to 48 aircraft.

NORAD backed the AAC proposal on 13 May and again on 26 May.(11)

But USAF would approve only seven more aircraft for a total of 40 F-102's.(12) USAF said that only seven more planes could be supported with the ground support equipment available in the Alaskan theater.

F-101 AIRCRAFT FOR CANADA

The RCAF planned to phase out ADC's CF-100 aircraft by FY 1964 (currently in nine squadrons). But there was no provision for replacing these aircraft.

NORAD sought F-101's for Canada. It stated an objective for F-101's for Canada in both its NADOP 61-65, November 1959, and NADOP 62-66, March 1960. In January 1960, CINCONAD urged support and action from DOD(13) and in May 1960, when the Bomarc B program was threatened, he appealed to the USAF Chief of Staff. He said that if the B program were cancelled, an urgent requirement would exist for around 120 advanced interceptors in Canada. If nine or more Bomarc squadrons were provided, this requirement would be for at least six squadrons of not less than 12 F-101B's each.

The final decision on new interceptors for Canada had not been reached at mid-year.

INTERCEPTOR RECOVERY BASES IN CANADA

A NORAD concept was to engage enemy attacks as far

from target areas as possible. To carry this out, NORAD wanted to extend the range of its interceptors by setting up recovery bases in Canada, where aircraft could refuel.

In NADOP 62-66, NORAD listed ten bases to be used for recovery.[14] These were Bagotville, Comox, North Bay, Chatham, St Hubert, Val D'or, Uplands, Saskatoon, Portage La Prairie, and either Cold Lake or Namao.

The requirement for recovery bases in Canada had been recognized by USAF. However, bases listed for recovery in USAF's Wartime Capabilities Plan differed from those wanted by NORAD.[15] Since no action had been taken to stock equipment at the Canadian bases in question, NORAD asked ADC to have USAF amend the WCP to conform with NADOP 62-66. This ADC did.[16] In addition, ADC told NORAD that it would insure that JP-4 fuel, oil, tow bars, and an engine starter assembly for use with Canadian starter units would be provided each base. ADC also told its divisions that the parts and personnel for minor maintenance would be provided from home base resources.

By June 1960, USAF had corrected the WCP and had asked AMC, ADC, and the USAF Central Coordinating Staff in Canada to get Canadian concurrence to preposition recovery equipment at the designated bases.[17]

THE MISSILE/GUN FORCE

BOMARC SQUADRONS

In the first six months of 1960, three new Bomarc A squadrons were activated.[18] These were the 37th Air Defense Missile Squadron (Bomarc), Kincheloe AFB, Michigan, 1 March 1960; the 74th ADMS at Duluth Municipal Airport, Minnesota, 1 April 1960; and the 35th at Niagara Falls Municipal Airport, New York, 1 June 1960. This made a total of eight Bomarc squadrons in the ADC force by June 1960.

Of this number, four were operational as of 30 June 1960. The operational units, all of which had been activated in 1959, were the 6th ADMS at Suffolk, New York; the 26th at Otis AFB, Massachusetts; the 30th at Dow AFB, Maine; and the 46th at McGuire AFB, New Jersey. The 6th and 46th had become operational in 1959. As of 1 July 1960, these four squadrons had a total of 168 launchers and 111 missiles.

NIKE AJAX AND HERCULES

During the first six months of 1960, ARADCOM added 16 new Hercules fire units to the inventory -- four each at the St Louis, Kansas City, and Cincinnati defenses and ~~two~~ each at Minneapolis-St Paul and Dallas-Fort Worth.[19] This increased the total Nike units in the inventory from 258 in December 1959 to 274 on 1 July 1960.

Although the numerical increase was 16, the effective increase was only 12. The four Nike Hercules batteries at Thule, Greenland, were temporarily out of operation. This was due to a decision to pull these units out of Thule which was later revoked (see Chapter One).

On 31 December 1959, 84 of the 258 operational fire units were Hercules equipped. Of these, 12 were located in Alaska and Greenland, the others in the CONUS. On 1 July 1960, 98 of the 270 operational fire units were Hercules equipped and 96 were nuclear-capable.

The other change taking place in the Nike structure during 1960 was more manning of the Ajax force by the Army National Guard. On 31 December 1959, there had been 174 Ajax units. Of these, 36 were being manned by 17 National Guard missile battalions in ten defenses. By 1 July 1960, there were 172 Ajax units. The ARNG had assumed control of 16 more batteries in the CONUS defenses, bringing the total to 52. These 52 batteries were being manned by 23 ARNG battalions in 11 defenses. Eventually, all Ajax units were to be manned by the National Guard.

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GUNS

The last gun battalion in ARADCOM, the 2d Gun Battalion (Skysweeper), 68th Artillery, Sault Ste Marie, Michigan, was relieved of its air defense mission on 15 April 1960.[20] It was inactivated on 15 June 1960.

ARADCOM inactivated one other battalion, the 4th Gun Battalion (Skysweeper), 7th Artillery, Savannah River, Georgia, on 25 January 1960. But this unit had been relieved of its air defense mission on 15 November 1959.

AUGMENTATION FORCE

CURRENT FORCE

On 1 July 1960, NORAD had available an augmentation force of 102 aircraft squadrons, or their equivalents, and aircraft from four training wings (two TAC and two ATC). The missile augmentation force consisted of six provisional Nike Hercules batteries. Six ANG squadrons and two training wings had been taken out of the force available in an emergency in the preceeding six months.[21] The ANG squadrons had converted to cargo aircraft and a transport mission under MATS and the two wings had been dropped by ADC as not being able to contribute enough to air defense.

FUTURE FORCE

Late in 1959, a NORAD-Component Command Augmentation Committee came up with a new concept for the augmentation force. It was approved in principle by CINCNORAD on 14 December 1959 and submitted to the JCS on 7 January 1960.[22] The idea in the NORAD plan was to set up a force that could realistically contribute, instead of planning on every unit available simply because it was available. This meant dropping some units from an augmentation role and giving others a back-up mission.

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NORAD divided the augmentation units into three categories. These were: I - non-regular units responsive to NORAD control 24-hours a day; II - back-up forces responsive to NORAD control during emergencies; and III - units not required by NORAD. In explaining to the JCS how it chose units for each category, NORAD said it used the following guidelines. A quality rather than a quantity force was needed. The force should be as compatible as possible with the control system. A perimeter defense and a defense in depth of the industrial heartland were minimum requirements. Augmentation units were to be deployed to fill gaps caused by cuts in the regular forces. And augmentation units needed first-line equipment and a capability equal to the regular force.

The force chosen by NORAD consisted of 30 fighter-interceptor squadrons (Category I and II), 12 support squadrons (Category II), 19 National Guard Ajax battalions (Category I), one Hercules and six Hawk battalions (Category II), and 19 AC&W squadrons (Category I and II).

NORAD told the JCS that it also needed certain other actions to make the augmentation force more immediately-usable in an emergency and to raise its capability. The National Guard Bureau and the Services had been asked to make agreements with the States to authorize CINCNORAD to employ Guard forces prior to the start of hostilities. USAF had been asked to authorize the tactical commands to which augmentation units were assigned to train, exercise and evaluate them. Finally, USAF and the JCS were asked whether reserve augmentation forces could maintain custody of nuclear weapons for training and during periods of Increased Readiness - prior to the start of hostilities.

In the meantime, while all this was being considered, the Assistant Chief of the NGB (Air), Major General Winston P. Wilson, pointed out that 15 ANG interceptor squadrons and two AC&W squadrons had not been given a mission.[23] The latter two units were in the Denver-Salt Lake City area. CINCNORAD replied that it was not his intention to keep any unit with an air defense capability from taking part in an augmentation role. ANG

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units that could not be supported with first-line equipment on an around-the-clock basis would be used in a back-up role. But primary emphasis would be placed on supporting the 24 hour a day force. Use of the two ANG AC&W units mentioned depended upon final decisions on the mission, organization and equipment for the Denver-Salt Lake City area.

In April, the JCS advised that they had found the categories and standards of NORAD's plan sound, but in the light of actions taken on NADOP 61-65 and other program changes the plan should be re-done and resubmitted. The JCS wanted NORAD to expand the areas to be defended to include the priority areas listed in the Canada - U. S. Emergency Defense Plan. They also pointed out that some units in NORAD's Category I force did not match the definition. The units had to be dropped or the definition changed.

The JCS also commented on permitting certain U. S. reserve components to have nuclear weapons available for training and during periods of increased readiness. They said that there did not appear to be any legal bar to an authorization by the President for unified and specified commanders to permit this. CONAD was to submit a plan covering handling, storage and dispersal of the weapons required.

In August 1960, NORAD told the JCS it had revised the definition for two of its three categories and had changed the standard for areas to be defended.[24] Category I forces were changed to "non-regular or regular forces not assigned to NORAD, responsive to NORAD control twenty-four hours a day." Category III was changed from "units not required by NORAD," to "war reserve forces." The standard was changed to "priorities established in the Canada - U. S. Emergency Defense Plan for protection of essential elements of North America's war making capability."[25]

Meanwhile, one of the things requested by NORAD in January had been done. Effective 1 July, USAF transferred the responsibility for the supervision of training and inspection of ANG forces from Continental Air Command to ADC.[26]

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CHAPTER 6

Summary Of The History

I - AIR DEFENSE PROGRAM CHANGES

THE YEAR 1960 CONTINUED THE SERIES OF PROGRAM CHANGES THAT STARTED WITH THE ISSUANCE OF THE SECRETARY OF DEFENSE'S CONTINENTAL AIR DEFENSE PROGRAM OF JUNE 1959.

The CADP revised downward the program for some items, left others at or near their previous level. Among other things, it was to scale the interceptor force down to 44 squadrons by FY 1963, reduce the Bomarc program to 16 U. S. and 2 Canadian squadrons, and cut back the number of hardened SCC's. Although it did not specify cuts in radar, it offered deployment guidance which required revising the program.

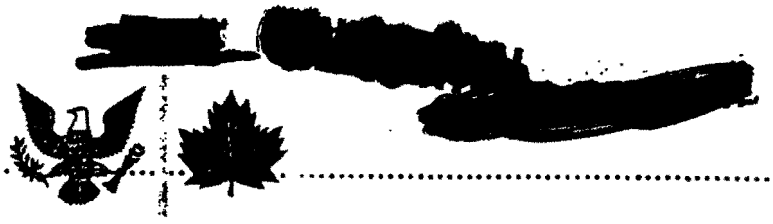
THE SPECIFIC PROGRAM OF THE CADP WAS NOT CHANGED UNTIL EARLY IN CY 1960, BUT DELETIONS AND DEFERRALS WERE BEING MADE IN CERTAIN OTHER AREAS IN LATE 1959.

Two SCC's and one FSQ-32V-equipped direction center were deferred as well as the NORAD hardened COC. The requirement for a new AEW&C aircraft was cancelled. DEW Line improvement requirements were cancelled. Modernization of the Navy AEW aircraft on the DEW barriers were postponed indefinitely. The CNO proposed to withdraw the picket ships from the DEW barriers. And finally two gap fillers programmed for Alaska were cut.

In the weapons area, the most significant event was the cancellation of the F-108. Also, USAF declared a further scaling down of the interceptor force to 42 squadrons by FY 1963.

STARTING OFF THE NEW YEAR, USAF IMPOSED NEW REDUCTIONS IN THE GROUND ENVIRONMENT PROGRAM.

Among other things, programmed frequency diversity radars were cut to 99 (down from 121), and the



number of gap fillers to be added in the U. S. to 93 (down from 132).

A WHOLE NEW SERIES OF CHANGES WERE ANNOUNCED IN MARCH 1960.

The new program resulted from a reduced budget and the shifting emphasis from the manned bomber to the ballistic missile threat. Most of the changes, however, were to undergo many adjustments in the succeeding months.

The super combat centers were deleted from the program. The frequency diversity radars would remain at 99 sets. USAF proposed closing down or turning over to FAA 32 search radar sites. Gap fillers for the U. S. were to be reduced to 48 sites. Only one wing of 35 aircraft on the east coast would be converted to ALRI. Interceptors would be further scaled down to 35 squadrons by 1964 (later changed) and Bomarc to ten squadrons. However, the interceptor force would receive improvements in ECCM, communications, armament, and low-altitude capability.

BECAUSE OF THE REDUCTIONS, NORAD CONSIDERED IT IMPOSSIBLE TO CONTINUE TO CARRY OUT THE CONCEPT OF AREA DEFENSE IN DEPTH FOR NORTH AMERICA AND PROPOSED TO CONCENTRATE INSTEAD ON A DEFENSE OF VITAL AREAS.

In line with this, CINCNORAD asked the JCS and COSC for a change in mission statement: "To defend to the maximum extent possible, with the forces provided, the most vital area of the U. S. and Canada." In brief, these areas were the west coast and the eastern portion of the continent.

NORAD'S PLANNING IN CONSEQUENCE TOOK MANY TURNS DURING THE REMAINDER OF THE PERIOD ENDING 1 JULY 1960.

NORAD attempted to realign its ground environment and weapons systems to provide for maximum effectiveness in the critical areas. By the end of the period many uncertainties remained in the air defense program. However, some of the major items had received tentative approval. The June 1960 program set the interceptor force for the end of 1964 at

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19 F-101 squadrons of 342 aircraft, 14 F-106 squadrons of 252 aircraft, and 9 F-102 squadrons of 241 aircraft. Bomarc was set at ten squadrons with 210 A missiles and 252 B missiles. In Canada and the U. S. there were to be seven regions, a manual control area in the 32d Region, and a manual surveillance and tracking area in the 29th Region. A display, such as Iconorama, was to be installed in the 28th, 29th, and 32d Regions. The 25th, 26th and 30th Regions had operating SAGE FSQ-8's. NNR was to have a combined direction center/combat center with a modified FSQ-7. A limited back-up control system was to be established around eleven NCC's. In radar, according to NORAD planners, there were to be 194 prime radars and 207 gap fillers in the ultimate program.

IN LINE WITH NORAD'S RECONFIGURATION OF THE SYSTEM, 14 NIKE HERCULES UNITS PROGRAMMED FOR SEVEN SAC BASES WERE TO BE RELOCATED TO THE WEST COAST AND NORTHEAST.

THE NEW NORAD COC IN CHEYENNE MOUNTAIN REMAINED DEFERRED, BUT ARDC WAS DIRECTED TO RESTUDY THE PROJECT.

II - ORGANIZATION

IN 1960, NORAD/CONAD BEGAN ITS SECOND YEAR OF REORGANIZING THE SUBORDINATE UNIT STRUCTURE TO ACCOMMODATE A TRANSITION FROM A MANUAL SYSTEM TO A SAGE CONTROL SYSTEM.

NORAD originally established 23 divisions and five regions for its manual control system. From this organization, it had been planned that the structure was to go to nine regions by 1 July 1960 and to eleven regions by 1 July 1964.

PLANS FOR NORAD'S SAGE ORGANIZATION WERE CHANGED BY THE CANCELLATION OF THE SAGE SUPER COMBAT CENTER PROGRAM AND ADOPTION OF A REVISED AIR DEFENSE PROGRAM.

NORAD was forced to develop a new plan for its subordinate unit structure. This would provide a seven-region structure (not including the Alaskan NORAD

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Region). Since there were eight regions on 1 July 1960, (not including ANR) one current region had to be discontinued . It was planned that the 33d Region, at Richards-Gebaur AFB, Missouri, would be discontinued about FY 1962.

ON 1 JULY 1960, A SEVEN-REGION STRUCTURE WAS ESTABLISHED IN THE CONUS WITH REDESIGNATION OF THE 25TH AND 28TH DIVISIONS AS REGIONS.

In the SAGE reorganization, NORAD stopped using geographical designations and began using numerical designations for its regions in the U. S. The designation "division" was dropped throughout the command. "Sectors" became the major subdivision of a region. The Alaskan and Canadian divisions were renamed sectors on 15 May 1960. By 1 July 1960, all divisions in NORAD/CONAD were either redesignated or discontinued.

IN OTHER CHANGES, THE 5TH NORAD DIVISION WAS MERGED WITH THE 25TH DIVISION, AND THE BOUNDARIES OF CANADA - U. S. BORDER REGIONS WERE REALIGNED.

In 1959, NORAD concurred in a recommendation to disband the 5th NORAD Division and to transfer its area of responsibility and control of its forces to the 25th NORAD Division. Both actions were carried out effective 15 May 1960.

In connection with this merger, NNR recommended a realignment of boundaries of certain border regions. NORAD agreed to the proposal and new boundaries became effective for the 25th Division, 29th, and 30th Regions, and for the Ottawa and Goose Sectors on 15 May 1960.

THE REORGANIZATION OF THE SUBORDINATE UNIT STRUCTURE WAS EXTENDED INTO THE NORTHEAST AREA BECAUSE OF USAF'S DECISION TO PLACE PEPPERRELL AFB, ST JOHNS, NEWFOUNDLAND, ON CARETAKER STATUS.

Headquartered at Pepperrell were ADC's 64th Air Division and NORAD/CONAD's 64th Divisions. ADC's 64th Air Division was moved to Stewart AFB, New York. The 64th NORAD/CONAD Divisions were discontinued on 1 April 1960. The Goose NORAD/CONAD Sectors

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(Manual) were established this same date at Melville AS, Labrador, for operational control and command of the forces in the area.

III - OPERATIONAL POLICIES AND PROCEDURES

IN FEBRUARY 1960, NORAD LAID DOWN REQUIREMENTS FOR A MANUAL SYSTEM TO REPORT NUCLEAR DETONATIONS AND FALL-OUT UNTIL AN AUTOMATIC SYSTEM BECAME AVAILABLE.

On 1 September 1959, the JCS took from CONAD and gave to NORAD the task of setting up and operating a nuclear detonation and fall-out reporting system. Until an automatic system was available, NORAD would use a manual system based primarily on individual observations.

PROGRESS WAS MADE TOWARD GETTING AN AUTOMATIC NUDET REPORTING SYSTEM BY MID-1960.

NORAD had urged procurement of an automatic system since late 1959. In April 1960, NORAD learned that USAF had been instructed by DOD to have an automatic system operational by 1 July 1962.

NORAD WAS ALSO INTERESTED IN GETTING INFORMATION ON NUCLEAR DETONATIONS FROM A BOMB ALARM SYSTEM BEING DEVELOPED FOR USAF.

In 1959, USAF instructed Western Union to develop and install a system to report nuclear detonations. The USAF system would be installed in two phases. Phase I would place detectors at 168 target areas and would be operational by 1 January 1961. Phase II would expand the net to BMEWS sites I and II and into Canada. Late CY 1961 was set as the date for completing the second phase. The net would report to six military centers, including NORAD's COC.

IN ATTACK WARNING, NORAD AGREED TO SUPPORT THE SETTING UP OF CANADIAN WARNING CENTERS AS REQUIRED AT NORAD REGIONS.

In 1959, the Canadian Army proposed to NORAD the setting up of a staff in the NORAD COC and at certain NORAD region headquarters to pass warning

information to Canada. NORAD agreed to the proposal for Army centers at the region level. But because of the crowded COC facilities, NORAD asked the Army to restudy the placing of a separate Army staff at Ent. NORAD stated that it could furnish attack warning information to Canada from the COC.

THE AIR DEFENSE SYSTEM WAS PROVIDED NEW GUIDANCE ON MAINTAINING AN ADEQUATE POSTURE TO MEET ALL SITUATIONS.

In 1959, the JCS set up a uniform system of readiness conditions for use by all unified and specified commands (DEFCONS). In January 1960, NORAD revised its regulation to include the JCS system. Approval was received from the COSC and the JCS to issue it and the regulation became effective 1 June 1960.

TO INSURE THAT NORAD RECEIVED EARLY WARNING INFORMATION FROM EUROPE, NORAD AND SHAPE WERE TRYING TO GET MORE EFFECTIVE COMMUNICATIONS BETWEEN THEIR COMMANDS.

In 1959, NORAD and SHAPE agreed that a more effective means of exchanging evaluated early warning information was needed. The commands were studying the type of communication link that should be set up. NORAD wanted a full-period voice circuit, SHAPE wanted a teletype system (Link III). The type of circuit to be set up had not been decided at mid-1960.

TO PROVIDE FOR EMERGENCIES, NORAD ISSUED GUIDANCE ON DISASTER CONTROL AND AN ALTERNATE COMMAND POST (ALCOP).

In February 1960, NORAD issued a disaster control plan for the first time. NORAD's plan divided the responsibility for control between the component commanders and NORAD region commanders. Also in February 1960, NORAD issued a new ALCOP plan. The 33d NORAD Region was designated NORAD's ALCOP (replacing the Central NORAD Region).

On air traffic control, NORAD issued a new policy letter on priorities for movement of military air traffic. It also studied the matter of collocating the Central Altitude Reservation Facility (at Kansas City, Missouri) with the NORAD COC and using CARF services in controlling wartime traffic.

After a conference with interested agencies, it was decided that there was no requirement for either action.

NORAD AND SAC REVISED THEIR JOINT TRAINING PROCEDURES AND INTENSIFIED INDOCTRINATION FOLLOWING A MID-AIR COLLISION.

Interceptor attacks on bombers were stopped in December 1959 following a mid-air fighter-bomber collision. Investigation revealed that everyone concerned in joint training was not thoroughly briefed on and did not follow procedures in training regulations. NORAD and SAC issued a joint training regulation and set up an intensive indoctrination program.

After satisfying themselves that the indoctrination was complete, they authorized resumption of joint training effective 0001Z, 18 April 1960.

IV - THE SURVEILLANCE SYSTEM

AT MID-YEAR, MANY ASPECTS OF THE GAP-FILLER PROGRAM REMAINED UNRESOLVED.

USAF was tentatively maintaining a program of 93 additional gap fillers (48 in the U. S., 45 in CADIN). But because NORAD wanted to make two major changes in coverage criteria and because NORAD thought perhaps more could be gained by modifying the old radars rather than buying new ones, the number and deployments of gap fillers was not settled.

NORAD's plan to use the Army's AN/FPS-36 radars as interim gap-fillers was abandoned. Tests proved this radar to be unsatisfactory for use in the SAGE system, and only two sets remained as gap fillers pending further determination.

A NORAD PROPOSAL FOR EQUIPPING MORE SITES IN THE OTTAWA SECTOR WITH FD RADARS WAS TURNED DOWN BY THE RCAF.

NNR RECOMMENDED ADDING RADARS TO THE EASTERN SECTION OF THE MID-CANADA LINE.

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NORAD agreed in principle, but wanted to wait until the weapons programs were settled before making a final decision.

IN MARCH 1960, NORAD ISSUED A MCL OPERATIONS ORDER WHICH ASSIGNED MCL'S MISSION AND NNR'S RESPONSIBILITIES.

THE CANADIAN GROUND OBSERVER CORPS UNITS LOCATED SOUTH OF THE 55TH PARALLEL WERE DISBANDED ON 1 JUNE 1960.

NORAD'S REQUIREMENT FOR SEAWARD EXTENSION AEW&C OPERATIONS WAS NOT BEING MET.

Only seven of the ten aircraft stations wanted could be manned as of 1 July 1960.

AEW&C AIRCRAFT IMPROVEMENT PROGRAMS WERE IN PROGRESS.

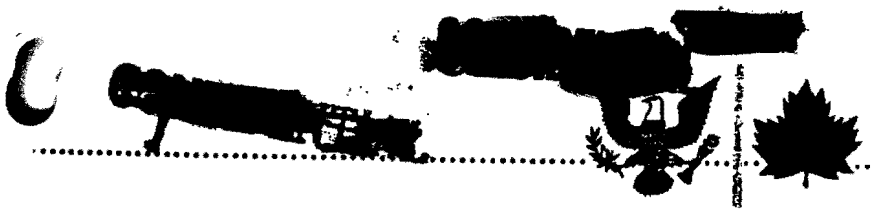
Replacement of the AN/APS-20 with the AN/APS-95 in all aircraft was scheduled to be completed by March 1961. The ALRI program for 35 aircraft was to be completed by February 1962.

THE NAVY BLIMP AEW SQUADRON, ZW-1, WAS WITHDRAWN FROM FULL-TIME AIR DEFENSE PARTICIPATION ON 1 JULY 1960, THREE YEARS AFTER IT BEGAN STANDING WATCH OFF THE EAST COAST.

PROGRESS IN BMEWS CONTINUED THROUGHOUT THE FIRST HALF OF THE YEAR.

The IOC date for detection radars at Site 1 was scheduled for September 1960; at Site 2 for June 1961 (under an accelerated program). DOD agreed to tracking radars for Sites 1 and 2 in June. On 4 August 1960, USAF approved immediate installation of a tracking radar at Site 1 (Thule), but fund limitations would delay a tracker for Site 2 (Clear). By February 1960, an agreement had been completed for Site 3 (Fylingdales Moor, England). At mid-1960, the IOC for the three tracking radars at Site 3 was set for April 1963, but possibly was to be advanced.

NORAD CONTINUED TO URGE ASSIGNMENT OF OPERATIONAL RESPONSIBILITY FOR AIR AND SPACE WARNING SYSTEMS SUCH AS MIDAS AND SPACETRACK.



V - NORAD WEAPON FORCE

AT MID-1960, THERE WERE 12 LESS OPERATIONAL FIGHTER-INTERCEPTOR SQUADRONS THAN AT THE END OF 1959, BUT THE FORCE WAS BEING EQUIPPED WITH NEW AIRCRAFT.

Twelve ADC squadrons were inactivated during the six months. By mid-1960, all F-86L's were gone, and only three F-89J squadrons and one F-104 squadron remained.

ARRIVING IN GREATER NUMBERS WERE THE F-101 AND F-106.

But because of problems in supply, maintenance, and training, combat readiness of F-101 and F-106 squadrons was low. More progress was achieved in getting the F-101 ready than the F-106 by mid-1960.

USAF CUT BACK THE FIGHTER-INTERCEPTOR PROGRAM FOR ALASKA TO ONE SQUADRON OF F-102'S, BUT AGREED TO EQUIP IT WITH 40 AIRCRAFT.

NO DECISION HAD BEEN MADE ON RE-EQUIPPING CANADIAN INTERCEPTOR SQUADRONS BY MID-1960.

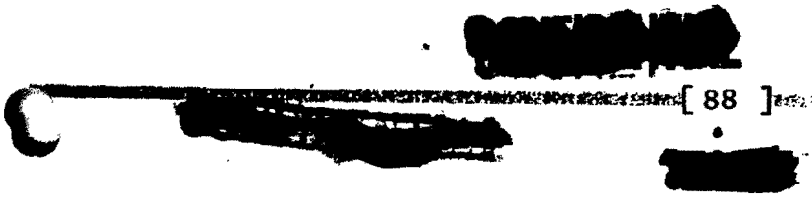
The RCAF ADC CF-100's were to be phased out of the system by FY 1964. CINCONAD/CINCNORAD urged support by DOD and USAF for replacing them with F-101's.

PROGRESS WAS MADE IN ESTABLISHING RECOVERY BASES IN CANADA FOR USE BY U. S.-BASED INTERCEPTORS.

Recovery bases were needed to support a NORAD concept to engage enemy attacks as far from target areas as possible. Ten bases were selected by NORAD and by June 1960, USAF had asked AMC, ADC, and the USAF Central Coordinating Staff in Canada to get Canadian concurrence to pre-position recovery equipment at these bases.

NORAD'S MISSILE FORCE INCREASED.

~~Five~~ Four Bomarc squadrons were added during the six months, making a total of eight, of which four were operational by mid-year. Sixteen new Hercules fire units were added also, but the effective



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increase was only 12, since four units at Thule were temporarily out of operation. The total Nike force was 274 fire units, of which 270 were operational.

ANOTHER CHANGE TO THE MISSILE FORCE WAS THE TAKING OVER BY THE ARMY NATIONAL GUARD OF 16 MORE NIKE AJAX BATTERIES IN THE CONUS DEFENSES FOR A TOTAL OF 52 BATTERIES OPERATED BY NATIONAL GUARD UNITS.

ARADCOM INACTIVATED ITS LAST GUN BATTALION ON 15 JUNE 1960.

ON 7 JANUARY 1960, NORAD SUBMITTED AN AUGMENTATION PLAN TO THE JCS WITH A NEW CONCEPT.

The new idea was to have a force that could realistically contribute, instead of planning on every unit available simply because it was available. In April 1960, the JCS told NORAD that the categories and standards on which the force was based were sound, but in light of actions taken on NADOP 61-65 and other program changes, it had to be re-done and resubmitted.

[redacted]

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