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UNCLASSIFIED

NORAD/CONAD

HISTORICAL SUMMARY

(Unclassified)

JANUARY – JUNE 1963

[redacted]

[redacted]

[redacted]

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UNCLASSIFIED

DECLASSIFIED BY NORAD/INTEV Ltr, 9 Jun 00

N3-30847-1

NORTH AMERICAN AEROSPACE DEFENSE COMMAND

9 Jun 00

MEMORANDUM FOR HQ NORAD HO (Dr. Hans Kristensen)

FROM: NJ3V

SUBJECT: Review of NORAD/CONAD Historical Summary

The NORAD/CONAD Historical Summary for Jan-Jun '63 has been reviewed and is declassified and releasable.

If you have further questions regarding the declassification of the referenced document, please call my POC in NJ33C, Lt. Col. Jeff Ford, ext. 4-9609.

Mark G. Beesley

MARK G. BEESLEY
Colonel, USAF
Vice Director of Operations

3 Atch
1. Ltr (Conf-Rel to Can/US), Jerome Schroeder, 19 May 2000
2. Ltr (U), Mr Hans Kristiansen, 30 March 2000
3. NORAD/CONAD Historical Summary (C), Jan-Jun 63

NORTH AMERICAN AEROSPACE DEFENSE COMMAND

MEMORANDUM FOR NORAD/PA 13 June 2000

FROM: NORAD/HO

SUBJECT: Declassification Request, NORAD/CONAD Historical Summary, Jan-Jun 63

1. Mr Kristensen requested a copy of the NORAD/CONAD Historical Summary for Jan-Jun 63. The NORAD/J3 staff has reviewed the historical summary and determined it is declassified and releasable. Attached is a copy of the historical summary and the NORAD/NJ3V memorandum declassifying/releasing the document.

2. Please refer any questions to the undersigned at 4-3385.

JEROME E. SCHROEDER
Assistant Historian

3 Atch
1. Ltr, Mr Kristensen, 30 Mar 00
2. Memorandum, NORAD/NJ3V,9 Jun 00
3. NORAD/CONAD Historical Summary, Jan-Jun 63

Hans M. Kristensen
5801 Sierra Avenue
Richmond, CA 94805-2024
Phone (510) 215-9356 / Fax (510) 215-7253
E-mail: hkristensen@msn.com

March 30, 2000

[00-032]

Headquarters NORAD
Directorate of Public Affairs
250 S Peterson Blvd Ste 116
Peterson AFB, CO 80914-3190
Attn: Freedom of Information Act manager

Dear Major Alford:

This is a request for release of NORAD information. I request a copy of the following document:

* NORAD/CONAD Historical Summary, January-June 1963.

For your information, through this request, I am gathering information on subjects of current and ongoing interest to the public. As an author and a research associated with the Nautilus Institute, a consultant to non-profit organizations (e.g., British American Security Information Council), and a frequent consultant to the mass media, I have both the experience and ability to disseminate information to the general public. I am a co-author of the *Neptune Papers* monograph series, several in-depth studies and reports as well as numerous articles on military and foreign affairs issues, most of which draw heavily on original documents obtained under the Freedom of Information Act.

I understand that NORAD as a joint US-Canadian command is not subject to FOIA but that it is your policy to release records or information where documents or information are not security classified or considered "NORAD Sensitive" and are cost efficient to provide. I also understand that NORAD uses NORAD Instruction 35-17, Processing Requests for NORAD Records as a basic guideline for charging fees that are similar to the US FOIA fee schedule. Previous requests by me to NORAD have been categorized as "Educational/News Media" as has been the case with other DoD agencies.

Under the FOIA, as a Category Two requester, I am only required to pay for the direct cost of duplication after the first 100 pages. But as you now, the FOIA permits the waiver of search and copy fees where the release of information will solely be used to contribute to public understanding of the operations of the government, and the request is non-commercial. I request that you honor the same FOIA principle and waive any applicable fees. If you decline to waive fees under this request or on appeal, I am naturally willing to pay all reasonable costs for the processing of this request.

I appreciate very much your help in obtaining this information and look forward to hearing from you within 20 days, as the statute requires. If you have any questions regarding this request, please feel free to call me at 510-215-9356, fax me at 510-215-7253, or communicate via e-mail at hkristensen@msn.com. Thank you in advance for your assistance.

Sincerely,

Hans M. Kristensen

[redacted]

NORTH AMERICAN AIR DEFENSE COMMAND
AND CONTINENTAL AIR DEFENSE COMMAND

HISTORICAL SUMMARY

JANUARY–JUNE 1963

1 NOVEMBER 1963

DIRECTORATE OF COMMAND HISTORY

OFFICE OF INFORMATION

HEADQUARTERS NORAD/CONAD

[redacted]

(This page is Unclassified)

N3-20847-1

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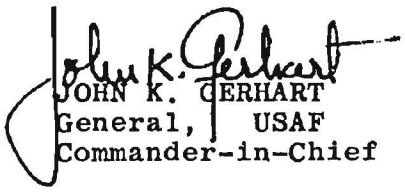
FOREWORD

This historical summary is one of a series of semiannual reports on the North American Air Defense Command and the Continental Air Defense Command. These summaries bring together in a single document the background and progress of key activities of NORAD/CONAD. The purpose of these reports is two-fold:

First, they provide commanders and staffs a continuing reference and orientation guide to NORAD/CONAD activities.

Secondly, they preserve for all time the record of NORAD/CONAD activities.

1 November 1963



JOHN K. GERHART
General, USAF
Commander-in-Chief

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RCAF ADC	3		NPPP	1
			NPMO	1
ARADCOM	3		NPSD	1
			NELC	1
NAVFORCONAD	2		NESA	1
			NEEC	1
USAF ADC	1		NECO	1
			NEPA	1
NORAD Regions	3	each	NGAM	1
			NGPM	1
NORAD Sectors	1	each	NNCH	18*
Hq NORAD	40			
TOTAL	102			

* Includes 12 copies for the JCS sent by separate submission. Distribution to the Services will be made by the JCS.

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MAPS AND TABLES

SYSTEM CHANGES

416L PHASE DOWN

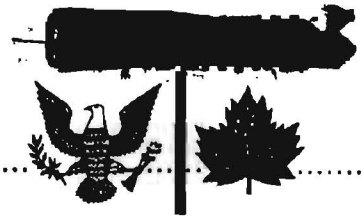
DIRECTIVE AND PLANNING

(U)(S) In September 1962, NORAD outlined to the Secretary of Defense (in response to a memorandum from the latter) a plan for replacing SAGE with a transportable control system (TRACE) in a phased transition by FY 1967. The final TRACE configuration would have three regions in the CONUS and ten sectors. Any changes, however, were based upon achieving an optimum posture with the IMI and receiving the TRACE system. There followed, however, no indication of approval of the IMI or TRACE.

(U)(S) In late 1962, the DOD directed the Air Force to reduce the air defense ground environment system by six SAGE direction centers and 17 prime radars by the end of FY 1964. The aim was a saving in funds and manpower spaces for FY 1964. USAF requested a plan from ADC.

(U)(S) ADC provided a preliminary plan, but protested the timing of the cuts as premature. ADC also provided an alternate proposal, calling for phase-down of ten direction centers and three region combat centers through 1965-1966, concurrent with the activation of improved, automated NCC's.

(U)(S) Following this, NORAD's Commander-in-Chief sent a personal message to the JCS protesting the immediate cuts and urging approval of ADC's alternate plan. He was gravely concerned, he said, over the impact of the cuts: "Such precipitous deletions could result in an unbalanced and significantly degraded air defense capability...."



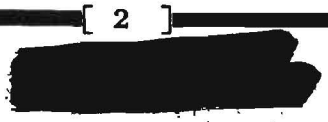
General Gerhart pointed out that his September 1962 report (above) had included the reduction of some DC's by the end of FY 1964, but only on the basis of having an automated control system available. BUIC was now delayed until late FY 1965 and any DC phase-out should be delayed until then.

(U)(C) Neither ADC's nor NORAD's appeal did any good, however, and on 21 February, USAF advised ADC that there was no recourse but to satisfy the terms of the OSD directive.

(U)(S) ADC Plan and the PSPP. On 26 February, ADC submitted a proposed phase-down plan which included six DC's (San Francisco, Sault Ste Marie, Syracuse, Spokane, Chicago, and New York), 17 prime radars and ten associated gap fillers and certain radio sites, and the 32d Air Division. The plan was amended shortly to substitute the Grand Forks and Minot DC's for Chicago and New York as a result of modification of the FAA Northern Tier agreement. The selection of radars was made with the aim of causing the least overall degradation to the system. Seven of the prime radars and the ten gap fillers were cut from the Oklahoma City Sector.

(U)(S) Adding to the loss, however, was the fact that to achieve the savings decreed by the Secretary of Defense in the FY 1964 projected budget, the majority of the deletions had to be programmed for FY 1963 rather than FY 1964 (see below). On 8 March, USAF approved the ADC proposals and so advised ADC and NORAD.

(U)(C) A Proposed System Package Program (PSPP), 1 April 1963, prepared by ADC and other Air Force agencies, proposed closing down the 26th Region combat center (FSQ-8) at Syracuse, New York, instead of the direction center (FSQ-7) at that location. This would be accomplished by moving the combat center to Stewart AFB, New York, where the Boston Sector DC was located and modifying the



FSQ-7 there to assume the combat center function. The Boston Sector DC function would be moved to Syracuse.

(U) (S) What this meant in actual deletions was that the facilities at five direction centers and one combat center would be shut down. But since the direction center function at Stewart AFB (Boston Sector) would be replaced by the combat center function of the 26th Region, actually six direction centers, as such, would cease operations and six sectors would be discontinued. As noted above, the Syracuse Sector, Hancock Field, would become the Boston Sector which would take over the former area of both sectors and the Syracuse designation would be discontinued.

(U)(S) NORAD Concurrence and Retention of the 32d Region. NORAD concurred with all these proposals, but proposed keeping the 32d Region. NORAD wanted the region because of the importance of the southeastern defenses (facing Cuba). If the 26th Region took over the southeast, its area would stretch from Cuba to Thule, Greenland. This was considered excessive, doubly so in view of the importance of the southeast area.

(U)(S) On 9 April, USAF approved the Syracuse/Stewart substitution and said it supported the phase-out of the 32d Air Division but if the 32d Region was kept, ADC and NORAD would have to absorb the manpower and funds to stay within authorized ceilings. NORAD replied on 16 April with a coordinated ADC/NORAD position. NORAD said it would keep the 32d Region, but would transfer the organization to Gunter AFB, Alabama, from Oklahoma City. Personnel authorizations would be kept within the ceilings imposed by the PSPP. All internal organizational changes in the ADC/NORAD structure would be made within guidelines imposed on the 416L reconfiguration.

[redacted]

SHUTDOWN OF FACILITIES

(U)(S) Operation of 416L facilities ceased or was scheduled to stop as follows:

15 January to 1 May 1963 -- 16 radars

15 January	- 1 LRR (Texas Tower 2)
25 March	- 1 LRR (Texas Tower 3)
1 May	- 14 LRR's and 10 GFR's

15 May to 1 October 1963 -- 6 direction centers

15 May	- San Francisco
	Minot
1 June	- Spokane
4 September	- Grand Forks
	DC at Stewart AFB
1 October	- Sault Ste Marie

15 June 1964 -- 1 LRR

1 July 1964 -- 26th Region CC move to Stewart AFB*

(U) NORAD/CONAD Sector Deletion. The deletion of direction centers and radars required considerable reorganization and realignment of forces, including sector discontinuance, expansion of succeeding sector boundaries, changes in region boundaries, and changes in assignment and control. NORAD discontinued its sector organizations as of the date that operations ceased at the direction centers. ADC sectors, consisting of large numbers of people, had to remain in existence longer to permit transfer of personnel.

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* (U) At the request of the 26th Region, NORAD authorized on 17 May the establishment of a provisional unit of the 26th at Stewart AFB. The purpose was to provide a unit for assignment of personnel until completion of the move.

(U)(CC) The first changes in NORAD/CONAD regions and sectors resulting from 416L deletions occurred on 15 May. The San Francisco NORAD/CONAD Sector and the Minot NORAD/CONAD Sector were discontinued.* The vacated areas were assumed by the Los Angeles and Portland Sectors and the Great Falls and Grand Forks Sectors, respectively. The 25th and 28th Region boundaries were changed to add to the 25th the portion of the San Francisco Sector becoming part of the Portland Sector.

(U) The next change occurred on 1 June. The Spokane NORAD/CONAD Sector was discontinued and the Seattle Sector expanded to include the vacated area.

(U)(CC) Effective 4 September, two more NORAD/CONAD sectors, Syracuse and Grand Forks, were to be discontinued. This would bring a host of changes. The headquarters location of the Boston Sector was to be moved, concurrently, from Stewart AFB to Hancock Field (Syracuse). The Syracuse Sector area was to be taken over by the Boston, Detroit, and New York Sectors, The areas of responsibility of these sectors were to be changed accordingly and the Detroit Sector assignment changed from the 30th to the 26th Region. This would change the boundaries of these two regions. The Grand Forks NORAD/CONAD Sector area was to be taken over by the Duluth and Sioux City Sectors. The Great Falls Sector was to be expanded to cover the area of the old Minot Sector with the exception of a small southern portion which was to be assigned to the Sioux City Sector.

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* (U) The ADC San Francisco and Minot Air Defense Sector headquarters were discontinued on 1 August and 15 August, respectively. Others: Spokane ADS - 1 September, Syracuse ADS - 4 September, Grand Forks ADS - 1 December, and Sault Ste Marie ADS - 15 December.

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(U) The final sector deletion would occur on 1 October when the Sault Ste Marie NORAD/CONAD Sector was to be discontinued.* Responsibility for its area was to be assumed by the Duluth, Detroit and Chicago Sectors which would require further shuffles in sector and region boundaries.

MOVE OF THE 32d NORAD/CONAD REGION

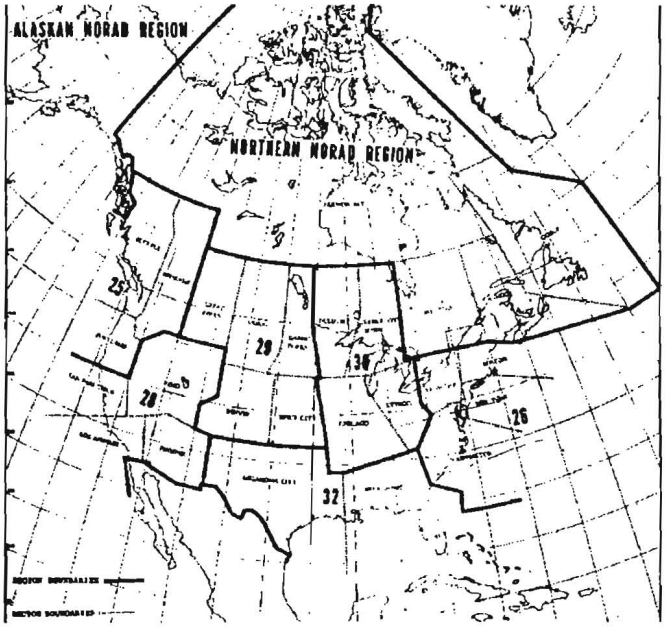
(U) ADC's 32d Air Division was to be discontinued on 4 September 1963. Earlier, on 1 July 1963, NORAD transferred its 32d Region Headquarters to the location of the Montgomery Sector Headquarters, Gunter AFB, Alabama, discontinued the NORAD sector, and reduced the region's area to the size of the sector it replaced. ADC's Montgomery ADS remained in existence and was assigned to ADC's 26th Air Division. The sector and the 32d Region headquarters were to be supported by the 26th Air Division. The region was to have operational control of the sector and Headquarters NORAD was to have operational control of the region.

(U)(S) The area vacated by the 32d Region/Division was placed under the Oklahoma City NORAD/CONAD Sector and the Oklahoma ADS. Headquarters for the sectors were established at the time of

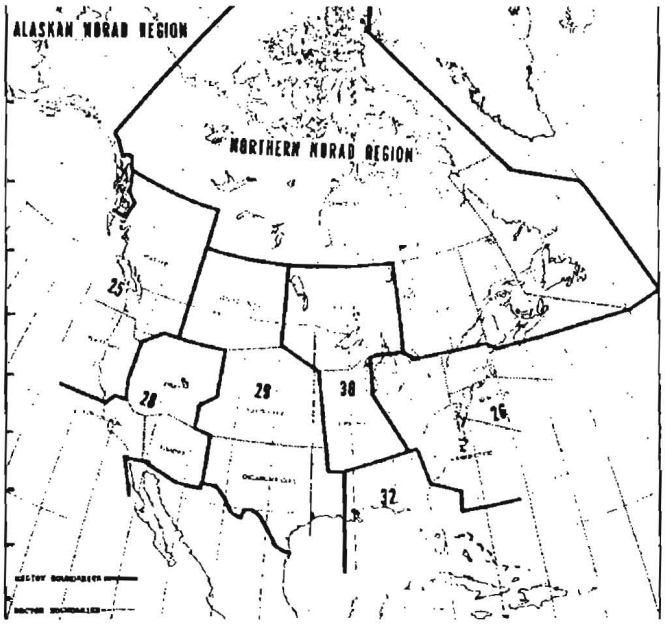
---

* (U)(S) Discontinuance of sectors that had both Canadian and U.S. manning (Minot, Spokane, Syracuse, Grand Forks, and Sault Ste Marie), released 121 RCAF manpower spaces. In April 1963, NORAD proposed to use 35 of these to augment manning at Great Falls, Detroit, Duluth and Boston Sectors which were taking over areas of deleted sectors. The remaining spaces, 86, could be returned to the RCAF. No decision, however, had been reached by mid-year.

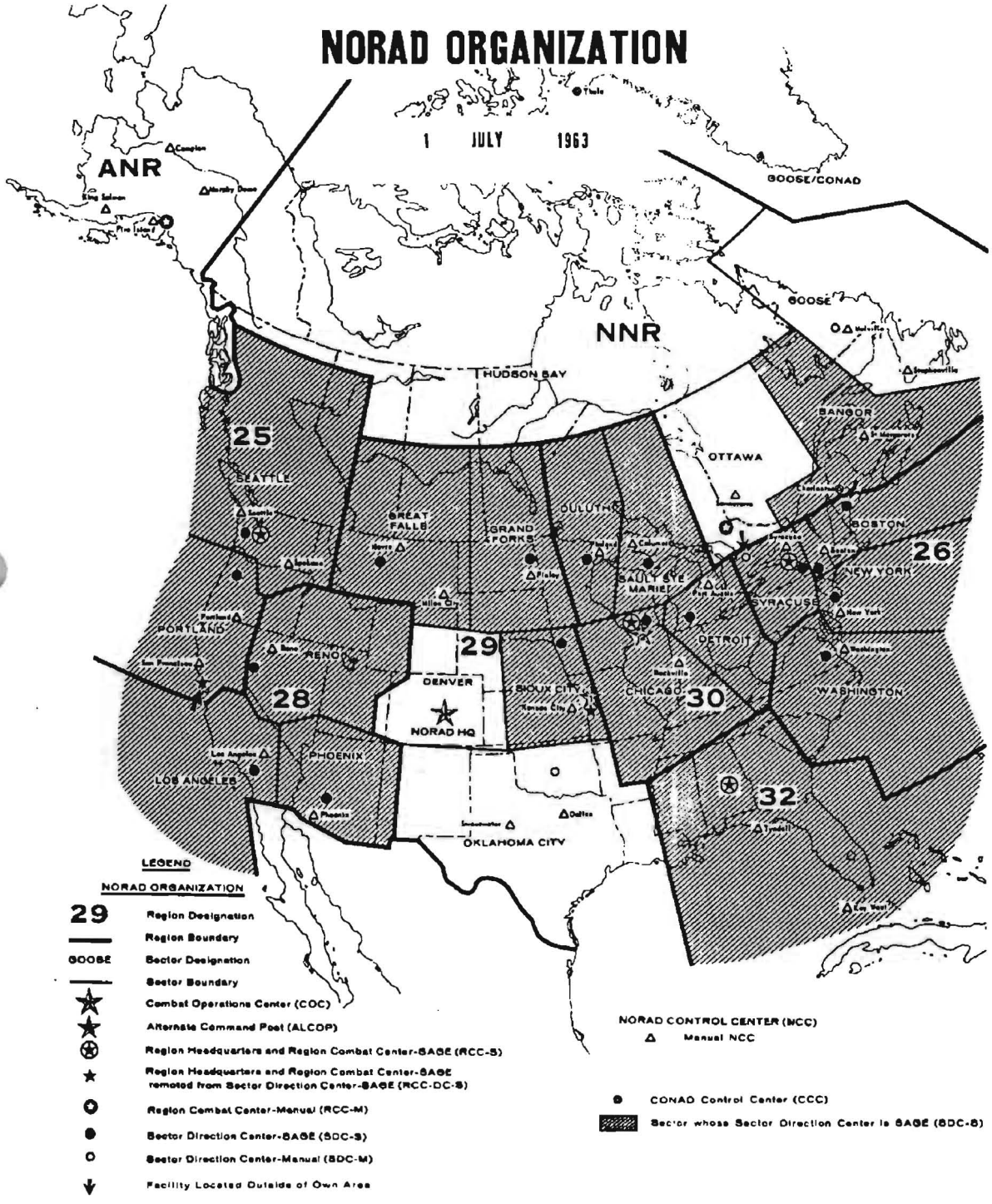
NORAD REGION BOUNDARIES



PRIOR TO THE 416L CHANGES



AFTER THE 416L CHANGES
1 OCTOBER 1963


NORAD ORGANIZATION
1 JULY 1963
ANR
NNR
GOOSE/CONAD
GOOSE
THULE
THUDSON BAY
BANGOR
OTTAWA
SEATTLE
GREAT FALLS
GRAND FORKS
DULUTH
BOSTON
NEW YORK
SYRACUSE
SAULT STE MARIE
DETROIT
PORTLAND
RENO
DENVER
NORAD HQ
SIOUX CITY
CHICAGO
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LEGEND
NORAD ORGANIZATION
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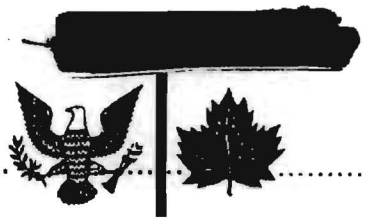
Region Boundary
GOOSE Sector Designation
Sector Boundary
Combat Operations Center (COC)
Alternate Command Post (ALCOP)
Region Headquarters and Region Combat Center-SAGE (RCC-S)
Region Headquarters and Region Combat Center-SAGE remoted from Sector Direction Center-SAGE (RCC-DC-S)
Region Combat Center-Manual (RCC-M)
Sector Direction Center-SAGE (SDC-S)
Sector Direction Center-Manual (SDC-M)
Facility Located Outside of Own Area
NORAD CONTROL CENTER (NCC)
Manual NCC
CONAD Control Center (CCC)
Sector whose Sector Direction Center is SAGE (SDC-S)



the move of the region.* The ADC sector was assigned to the 29th Air Division (SAGE) and the NORAD/CONAD sector to the 29th NORAD/CONAD Region. The NORAD sector was to be under the operational control of NORAD Headquarters initially and then changed to the 29th Region when communications became available. The sector was to operate the old 32d Region combat center as a manual direction center. It would have two NCC's reporting (Sweetwater and Dallas, Texas) which were transferred from the 32d to the 29th Region.

(U) The 32d NORAD Region was to be commanded by an Air Force brigadier general with the additional duty of commander of the Montgomery ADS. Integration of the sector and region functions and manpower resources was to be carried out to the maximum possible. The Joint Headquarters Table of Distribution, dated 1 July 1963, for the 32d Region authorized a total of 35 NORAD/CONAD manpower spaces -- 23 officers, 8 enlisted men, and 4 civilians.

(U) The Oklahoma City NORAD/CONAD Sector was to be commanded by the commander of the ADC air defense sector as an additional duty. All other functions and staffs were integrated to the maximum. The Joint TD 1 July 1963, for the sector authorized a total of six NORAD/CONAD spaces -- 4 officers, 1 enlisted, and 1 civilian.

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* (U) The Oklahoma City NORAD/CONAD Sector had been designated previously but without a headquarters. ADC had deactivated the headquarters of its Oklahoma City ADS in 1961 when the 32d Region/Division moved to Oklahoma City from Dobbins AFB, Georgia. ADC's Oklahoma City ADS headquarters was organized and the sector assigned to the 29th Air Division effective 25 June 1963.

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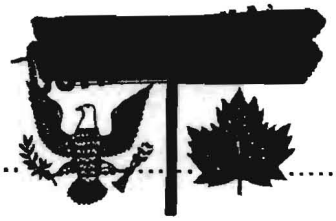

TEXAS TOWER INACTIVATION

(U)
(S) Counted as two of the radars shut down in the OSD-directed 416L phase-down program were the two Texas Towers. These towers, the only two remaining,* had long been slated for deletion when ALRI became operational. But a problem of scouring of the ocean floor around the towers' legs, cost of repairs, intermittent operation caused by evacuation due to storms, and the approaching ALRI capability resulted in a decision to inactivate Tower 2 immediately, man Tower 3 with a seven-man security crew (but with the capability retained for full operation within 24 hours), and to inactivate this tower when the first ALRI station was operational. The JCS directed the above on 2 January. Tower 2 was inactivated on 15 January.

(U)
(S) On 6 March, ADC advised that it could satisfy the minimum alert requirements, Alpha and Bravo, of NORAD Regulation 55-3 with ALRI-equipped aircraft (EC-121H). ADC expected that Charlie requirements could be met by May, and Delta requirements by June. NORAD decided to go ahead with the inactivation because of the continued cost in maintaining the tower and risk of life involved, and authorized ADC to inactivate. Tower 3 was decommissioned and equipment turned off 25 March 1963.

---

* (U) Originally, in January 1954 five towers were approved by USAF. The idea of putting radar platforms on shoals lying off the Northeast Coast came from the Lincoln Laboratories of M.I.T. in the summer of 1952. There were five strategically-located shoals and five towers were recommended. The first towers, TT-2, was erected on Georges Shoal and became operational in May 1956. Shortly after this, two towers, TT-1 and TT-5, were cut from the program as unnecessary. The other two towers, 3 and 4, became operational by 1959. Tower 4 collapsed into the sea in January 1961. After this, the two towers left were evacuated during severe storms.

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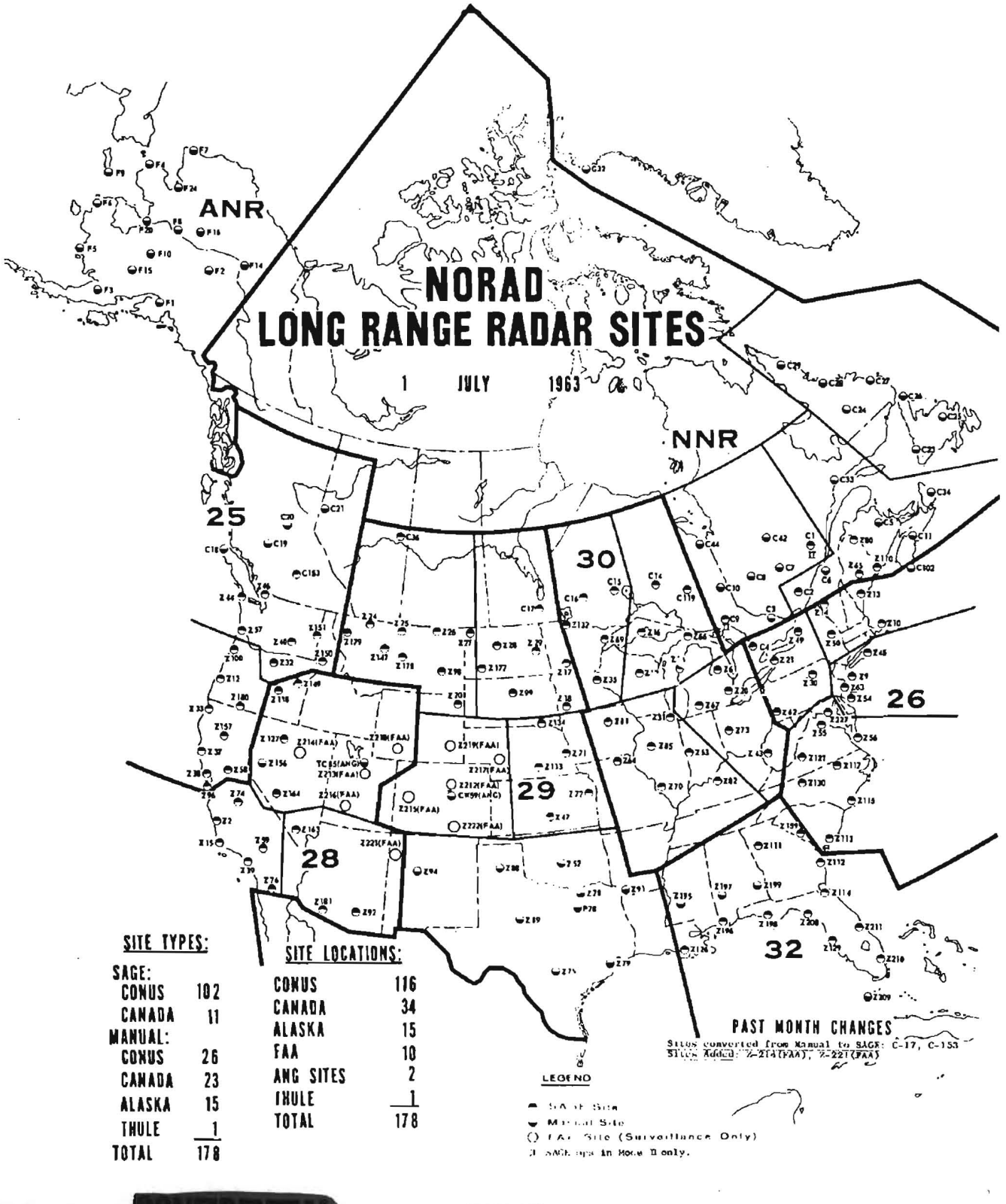

[redacted]

ANG TAKE-OVER OF RADARS

(C) (S) To compensate to some extent for the loss of radars under the OSD-directed 416L phase-down, ADC proposed to USAF that the Air National Guard be approached on taking over manning and operation of certain radars in the Oklahoma City Sector area. USAF concurred on 8 March and asked for a plan of operation for submission to the Guard.

(U) (S) ADC listed seven radars, all but two of which, Z-188 and Z-187, met the ANG requirement for being within 50 miles of a city of 25,000 or more. In the order of priority for reactivation, the radars were:

Z-186 - Pyote AFS, Texas
Z-191 - Rockport AFS, Texas
Z-90 - Walker AFB, New Mexico
Z-188 - Eagle Pass AFS, Texas
Z-125 - England AFB, Louisiana
Z-95 - Las Cruces AFS, New Mexico
Z-187 - Ozona AFS, Texas

(C) (S) The ANG said it could take over four of these -- Z-186, Z-191, Z-90, and Z-125 -- sometime in FY 1965 if funds were authorized. The matter was still under consideration at mid-year. In the meantime, the other three radars -- Z-95, Z-187, and Z-188 -- were dropped from consideration for ANG take-over.

STUDY OF REDUCTION OF NORAD REGIONS

(U) (S) ADC's Plan II, developed in 1962 as a result of the OSD-directed Project 39,* proposed

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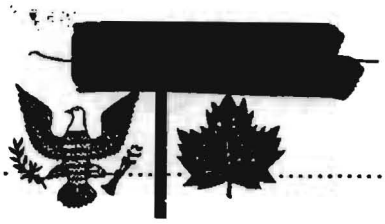
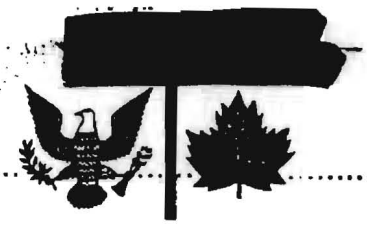
* (U) A project aimed at reduction of headquarters staffs and number of headquarters organizations to lower expenditures and accelerate the decision-making process.



reduction of the ADC organization from six SAGE divisions to three Air Forces and of the NORAD/CONAD organization in the continental U.S. from six regions to three. NORAD's report to the Secretary of Defense in September 1962 proposed reducing regions and sectors along with implementation of TRACE. If TRACE was available, ten SAGE DC's and three regions could be phased out by end FY 1964, NORAD stated. NORAD's JSOP submission in January 1963 deferred reduction of three regions to a phase-down to 12 SAGE sectors in FY 1966. The NORAD's Objectives Plan 1965-1974, June 1963, proposed reduction of three regions in FY 1966 with the planned reduction from 16 to 12 sectors.

(U) (S) ADC wrote to NORAD in March 1963, stating that the OSD-directed 416L phase-down permitted reconfiguration of the operational structure in the CONUS to three regions. Tentative plans were to accomplish this, if NORAD concurred, as soon as programming and communications for the expanded regions were available. Programming would take some eight months; communications availability could not yet be determined.

(U) (S) NORAD replied that it wanted no further deletions in its command and control facilities until FY 1966. Then in June, NORAD replied to an ADC letter on its Plan "R" for ADC reconfiguration. This would reduce ADC's organization to three air forces by FY 1965. NORAD said it had no objection to ADC submitting its proposal to USAF, but wanted inserted a statement that NORAD had agreed, in principle, to a future consolidation to three CONUS regions, but this was tied to increased combat capability and improved BUIC which could not be expected before FY 1966. But NORAD also said it was studying the possibility of speeding up its reconfiguration to accommodate ADC objectives. The reason was that NORAD recognized that little money could be saved by the ADC changes until the NORAD regions were reduced.



(U) (S) It was later decided, however, by ADC that ADC's Plan R should be re-examined in view of possible future major changes in weapons and ground environment. This was underway by August.

RELOCATION OF NNR AND OTTAWA NORAD SECTOR

(U) (S) Current planning called for the Northern NORAD Region (NNR) and the Ottawa NORAD Sector to become SAGE-operational 1 October 1963. The changeover began on 1 August 1962 with the setting up of two advance detachments at RCAF Station, North Bay, Ontario. During the changeover period the region headquarters was to move from RCAF Station St. Hubert, Quebec, to the hardened site at North Bay. In addition, an Ottawa Sector Headquarters was to be established at North Bay, though the sector previously had not had a headquarters.

(U) (S) NNR had originally suggested that the move be facilitated by setting up one NNR detachment at North Bay, to be composed of personnel coming in to fill the North Bay NNR and Ottawa NORAD Sector positions. The detachment would then become NNR Headquarters when the region combat center and sector direction center became SAGE-operational.

(U) (S) NORAD suggested two detachments instead, one for incoming region personnel, the other for incoming sector personnel. Then, as the move progressed, Detachment A would be redesignated NNR Headquarters and Detachment B Ottawa NORAD Sector Headquarters. In the meantime, both detachments would be directly responsible to NNR Headquarters. This plan was adopted, and NNR Detachments A and B were established at North Bay on 1 August 1962.

(U) (S) NNR Headquarters was moved to North Bay officially on 13 May 1963, replacing North Bay

Detachment A. Ottawa NORAD Sector Headquarters was established at North Bay on the same date, replacing North Bay Detachment B.

(U) On the same date the two headquarters were established at North Bay, NNR established Detachment A, NNR Headquarters, at St. Hubert, Quebec, and Detachment A, Ottawa NORAD Sector Headquarters at Edgar, Ontario. Detachment A, NNR Headquarters ran the manual combat center at St. Hubert until the interim manual combat center at North Bay became operational on 18 June 1963. The St. Hubert detachment then operated as a back-up until 1 July 1963, when it ceased operating, completing the NNR Headquarters transfer to North Bay.

(U) Between 1 July and 1 October 1963 the manual combat center at North Bay was to phase into SAGE control gradually as SAGE testing progressed. Testing was expected to be completed by 15 September and NNR Headquarters was to go fully SAGE-operational on 1 October 1963.

(U) The Ottawa NORAD Sector's Detachment A was to continue operating the manual direction center at Edgar while SAGE was being tested and personnel were being trained at North Bay. Edgar was to maintain operational control of the sector until 1 October 1963, when the Ottawa Sector SAGE Direction Center at North Bay was to assume control. Then the sector's Edgar detachment would be phased out and the sector headquarters transfer would be complete.

(U) A new NNR JTD was published, effective 13 May 1963, the same date Headquarters NNR was relocated and Headquarters Ottawa NORAD Sector was organized at North Bay, reflecting the manning of the two headquarters. Total strength for NNR Headquarters was 117: 88 RCAF, 28 USAF, and 1 Army. Total strength for Ottawa NORAD Sector Headquarters was 284: 239 RCAF and 45 USAF. This

JTD was superseded by a 1 July 1963 JTD reflecting an increase in RCAF spaces by 1 in NNR Headquarters (total - 118), and an increase in RCAF spaces by 2 in Ottawa Sector Headquarters (total - 286).

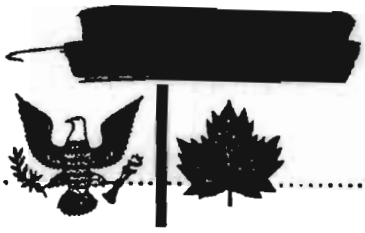
DEW LINE AND ALASKAN RADAR DELETIONS

INACTIVATION OF DEW LINE INTERMEDIATE STATIONS

(U) (S) Background. Consideration of deleting the DEW Line intermediate stations, which were equipped with the AN/FPS-23 Aircraft Alarm System, went far back. In May 1961, following a study on modification of this system, NORAD recommended that modification be stopped because the improvement was inadequate and deletion of the alarm system was under study. NORAD did not recommend deletion at that time, however, because of the low level threat still existing, deciding to withhold a decision for a year. Later in 1961, two radar evaluations (High Look and Toy Soldier) were conducted against the DEW Line which indicated that the AN/FPS-19 on the DEW Line (Main and Auxiliary sites) could provide adequate coverage in high altitude in a pencil beam configuration and at low altitude in a cosecant-squared configuration.

(U) (S) In April 1962, NORAD advised all concerned that it was considering deleting the requirement for the FPS-23. A study had shown that they contributed very little, NORAD said. For one thing, the threat had changed. The DEW Line had been built to detect attack from all altitudes. But the purpose of the DEW Line now was to keep the USSR bomber force at stand-off position until after a missile attack. Bombers could undoubtedly then penetrate the DEW Line at optimum altitude for maximum effectiveness.

(U) (S) Then in June 1962, NORAD informed ADC, ANR and NNR that the operational requirement for employment of the FPS-23 would be considered non-existent when the FPS-19 radar had been adjusted



to improve low-level coverage and communications realignment completed. By September 1962, ADC had completed the changes. NORAD then told ADC that the current low-level coverage of the adjusted FPS-19 radars was acceptable and that there was no longer an operational requirement for the FPS-23. But the stations could not be eliminated until Canadian agreement had been obtained.

(U) In the meantime, NORAD provided the Secretary of Defense its views on keeping the DEW Line except the intermediate stations and possibly some auxiliary (FPS-19) stations. An ADC study made after this report indicated that eight of the latter sites on the main DEW Line and two or three on DEW West could be cut. In NADOP 65-74, NORAD repeated its position that the DEW Line was required as bomber hold-back line, but that the low altitude capability was excess to the revised mission and so the intermediate and some auxiliary sites could be deleted.

(U) Stations Inactivation. USAF advised ADC that U.S./Canadian agreement had been reached on deletion of the intermediate sites and authorized ADC to proceed. NORAD, as noted above, had previously (September 1962) eliminated the operational requirement. Following USAF's message, ADC authorized immediate deactivation. Effective 0001Z, 21 July 1963, the 28 intermediate stations ceased operations.

INACTIVATION OF THREE ALASKAN RADARS

(U) Because of the need for economy, Alaskan Air Command reviewed its resources and found, in the light of radar redundancy, it could delete three radars without serious air defense degradation: F-21, Bethel AFS; F-22, Middleton Island AFS; and F-25, Ohlson Mountain AFS. AAC's study showed this would save 323 personnel, $3,365,000 in annual operating expenses, and $209,000 in one-time improvement costs.

[redacted]

(U) CINCAL concurred and sent the recommendation to the JCS through NORAD. The latter concurred also. The JCS approved the inactivations on 17 April. The three stations ceased operations on 15 May.

[redacted]

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2

THE GAP FILLER PROGRAM

BACKGROUND

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(S) A program was established in October 1960 by USAF to modernize all existing SAGE gap filler sites and equip all programmed SAGE gap filler sites, a total of 182 -- 137 in the U.S. and 45 in Canada -- with the AN/FPS-74. At that time, there were also 12 non-SAGE gap filler sites, which were to have the AN/FPS-18, making an over-all total of 194 gap fillers. Originally, the date established with the contractor, Budd Electronics, for installation of the first FPS-74 was 1 October 1962 and for operation of the first set on 1 January 1963.

U

(S) After this, the program came in for continual revisions, delays, reappraisals, new scheduling, and other problems. In November 1961, fifty AN/FPS-74 modification kits were cut to get funds for the BUIC program. The FPS-74 program schedule began to slip because the contractor ran into difficulty in producing satisfactory equipment and by mid-1962 was behind at least six months. In July 1962, Canada announced its intention to defer its portion of the program for a year because of financial stringencies and the difficulties in FPS-74 manufacture. By the end of 1962, the FPS-74 program, behind nearly a year, was in jeopardy of complete cancellation. At that time, the gap filler program called for 124 FPS-74's and 50 FPS-18's for air defense sites.

DEVELOPMENTS IN 1963

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(C) In the early months of 1963, the Air Force reviewed the FPS-74 program many times and decided

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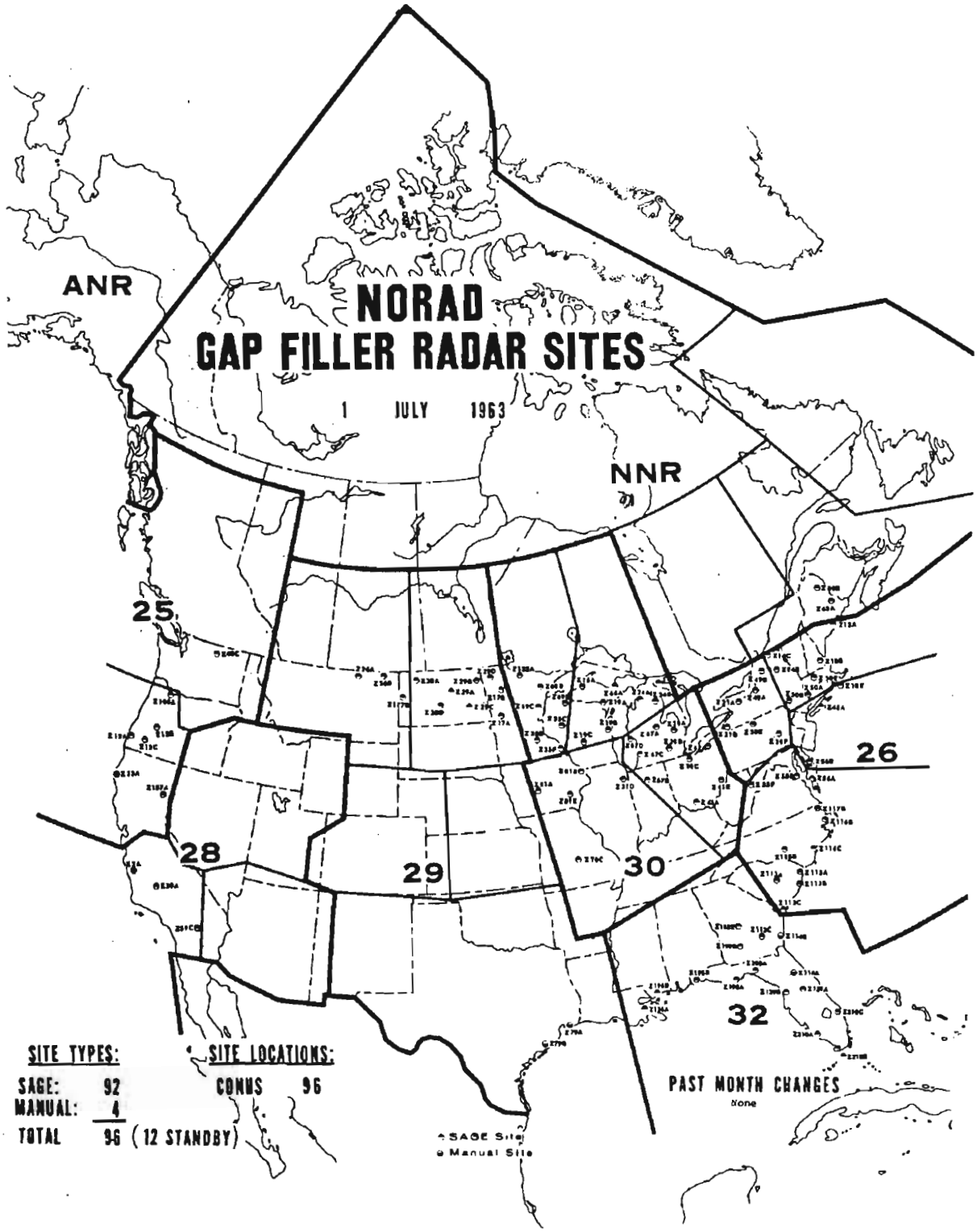

NORAD
GAP FILLER RADAR SITES
1 JULY 1963
ANR
NNR
25
26
28
29
30
32
SITE TYPES:
SAGE: 92
MANUAL: 4
TOTAL 96 (12 STANDBY)
SITE LOCATIONS:
CONUS 96
PAST MONTH CHANGES
None
SAGE Site
Manual Site

[redacted]

to continue with Budd, provided the company made certain changes in their technical management and employed capable engineers to correct first article deficiencies. Also, Budd was to make changes to the first article regardless of extent at no cost to the government. The company agreed and employed new personnel and began extensive first article modifications. The modification program was reviewed by the Air Force every other week.

(U) In the meantime, however, much thought was being given to the need for continuing the program. In February, the RCAF Chief of the Air Staff wrote to the USAF Chief of Staff that the continued delays had caused the RCAF to question the merit of proceeding with the Canadian part of the program. Mutual consent to amend the CADIN agreement was required, however, the RCAF Chief continued, so the RCAF was willing to again examine its position if USAF felt this was desirable.

(U) NORAD commented to USAF that it still considered the CADIN gap fillers a valid requirement, with the exception of eight sites in the Bangor Sector. These sites were more than 180 nautical miles forward of any BOMARC B base, the major criteria in determining the original gap filler requirements, and it was proposed to withdraw the Nike Hercules units from the Loring area.

(U) The USAF reply to RCAF explained that an air defense study was underway for the period 1966-1975 which might indicate changes that would affect the gap filler program. Therefore, USAF said, it appeared appropriate to exclude funding of gap filler radars in the Canadian FY 1963-1964 budget, but to hold up on a decision on the program until later in the year. The RCAF Air Staff Chief answered that he had excluded funding of gap fillers in the FY 1963-1964 budget and inclusion in the following one would be tentative.

(U) In April, ADC had replied to a USAF query on continuing the Budd contract with a stand similar

to the NORAD position. ADC said there was justification for continuing the FPS-74 program with Budd to first article delivery if it took until January 1964, but that no decision on the program should be made until the Continental Air Defense Study, being made by the Air Force, was completed and requirements determined. Then in May, USAF told ADC it was still considering cancelling the FPS-74 contract. USAF asked for ADC/CONAD views on replacing the FPS-74 program with additional maintenance effort on the present FPS-14's and FPS-18's.

(U) (S) ADC replied that added maintenance would not satisfy the requirement for better equipment. NORAD and ADC would continue to stress improvement of equipment until replacement systems, such as the ASG-18, were available. Again ADC asked that no decision be made until a decision had been made on the CADS recommendations.*

(U) (C) At the 416L Phasing Group Meeting in July, a new schedule was worked out. The first FPS-74 installation at an air defense site was set for 30 April 1964. Ninety days had to be added for operation. The last FPS-74 installation was set for the end of February 1965. RCAF participation remained uncertain so all FPS-74's for Canada were placed at the end of the implementation schedule.

(U) (S) As of 1 July 1963, the program called for a total of 163 gap filler radars (124 FPS-74's and 39 FPS-18's). There were to be 162 sites -- 118 in the ZI and 44 in Canada. Ninety-six gap filler radars were operating as of 1 July, 43 FPS-14's and 53 FPS-18's.

(U)
* (S) The CADS Report, 10 May 1963, proposed a Canadian-U.S. surveillance system of 134 LRR's and associated gap fillers and height finders. The report recommended retention of gap filler radars for BOMARC support as long as required and for detection of low altitude penetration around the perimeter.

NUDET, BOMB ALARM AND BW/CW REPORTING SYSTEMS

[redacted]

NUDET REPORTING SYSTEM

BACKGROUND

(U) (S) Early in 1960, DOD instructed USAF to develop, procure and install an automatic nuclear detonation reporting system. The NUDET System (477L) Program was divided into two phases: Phase I (prototype) was to provide positive information of a nuclear detonation within the Washington, D.C. target area; Phase II was to provide a capability for determining the occurrence of a nuclear detonation within specified target areas of the United States and Canada, and to furnish burst data required for attack assessment, fallout warning and damage assessment.

(U) (S) On 5 February 1962, the Air Force awarded a contract to General Electric for installation and testing of the prototype system and for development of the basic design for the final system. It was to be operated by ADC and to be responsive to and under the operational control of CINCNORAD. The 477L experimental system was scheduled to have an initial operational capability by 1 April 1963. This date later slipped to 1 August 1963.

STATUS

(U) (C) Later, NORAD learned that unexpected technical problems developed which gave reason to question the entire technical feasibility of the present concept of detection of nuclear events:

[redacted]

1. Radio frequency interference at present installations was blanking out the seismic sensors;

2. The electromagnetic sensors were being triggered by radio interference as well as the antenna sweeps of associated radars; and

3. The optical sensors were being triggered by the sun and by each sweep of nearby ADC radars.

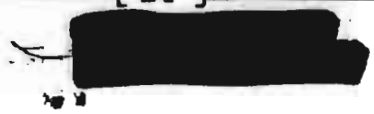
It became apparent that the forecast Phase I NUDETS operational date of 1 August 1963 was not likely to be met. Further, the occurrence of such problems at this stage in the Phase I program would undoubtedly have an adverse effect on the resolution of problems and system planning for the Phase II nation-wide system.

BOMB ALARM SYSTEM

(U) (S) A bomb alarm system was developed for the Air Force by the Western Union Telegraph Company that would automatically report the time and location of nuclear detonations to Headquarters NORAD and other key military and civilian agencies. Following completion of tests in August, the system was declared operational 1 September 1962. The system consisted of sensors at 97 locations in the continental U.S. and one each at the BMEWS sites at Thule and Clear.*

(U) (S) A re-evaluation of NORAD's operational requirement for bomb alarm at BMEWS Station III

(U) * (S) However, Chennault AFB, La. was closed effective 1 July 1963, and action was taken to terminate the Bomb Alarm System instrumentation at Chennault on that date, leaving a total of 96 instrumented target areas in the CONUS.



was made, It was decided that bomb alarm instrumentation of this station would not contribute sufficiently to the NORAD mission to justify the expenditure. USAF ADC was so advised on 21 June 1963.

BW/CW RAPID WARNING SYSTEM

INTERIM SYSTEM

(U) (S) Background. NORAD submitted a requirement to the JCS in May 1961 for an automatic biological and chemical rapid warning system, which was approved in October 1961. The Department of the Army was assigned responsibility for providing this system as soon as possible.

(U) (S) The JCS directed the Chief of Staff, U.S. Army, in January 1962 to establish an interim system, pending availability of an automatic system. CINCNORAD was to assume and exercise operational control over these systems as they became operational.

(U) (S) On 25 September 1962, the Policy and Doctrine Division of the CBR Directorate (DCS/Ops, U.S. Army, Washington, D.C.) provided NORAD with a draft plan for the interim system. The interim system was to be primarily a manual system based upon observations and judgment of trained personnel, using standard detection equipment currently available, and the reporting of these observations to CINCNORAD. Comments received from the various services and other interested agencies were incorporated into a revised draft plan, which was informally approved by the military services.

(U) (S) Status. The draft plan for a CONUS Interim Chemical-Biological Warning System was approved for implementation by the JCS on 14 March 1963, with an operational date of 1 July 1964. This interim warning system, using equipment

currently or soon available, would not warn of the approach of toxic C-B agents but would enable the installation(s) under attack to detect, identify, and report the use of these agents. The reporting system would transmit information to NORAD for evaluation and dissemination of appropriate warnings.

AUTOMATIC SYSTEM

(U) (S) Background. As stated above, NORAD had submitted a requirement to the JCS in May 1961 for an automatic biological and chemical rapid warning system, which was approved in October 1961, and later expanded by the JCS to make it an over-all continental system, rather than being confined solely to NORAD units as outlined in the NQR. The Department of the Army was assigned responsibility for providing this system as soon as possible. They recommended development of an automatic system in four phases. However, initiation of the Army's proposed four-phase program for development, procurement, and implementation of an automatic BW/CW rapid detection and warning system was being held in abeyance by the Deputy Director of Defense, Engineering and Chemistry, pending a complete systems analysis to further define and clarify the project.

(U) (S) A project manager was provided from the Chemical Corps, with a system oriented staff to assist the project manager. The purpose of the manager and staff was to supervise, guide, and/or oversee the entire automated BW/CW system.

(U) (S) Status. A system analysis study was to be made in two phases. In the first phase (Phase IA) two contractors, on a competitive basis, were to develop their basic concepts of the system, the scope of the considerations involved in the detailed study effort (Phase IB), together with their plan for accomplishing Phase IB. These

reports were submitted on 10 July 1963, evaluated and the successful bidder was awarded the Phase IB detailed system analysis. Target date for completion of the Phase IB study was to be 31 May 1964.

(w) (S) At JCS direction, NORAD had queried the Canadian Chiefs of Staff Committee on 24 May 1962 on Canada's participation in the BW/CW Rapid Warning System Program. On 19 February 1963, the Chairman of the COSC advised the Chairman of the JCS that the desirability and implications of direct Canadian participation had been under careful review over the past year, and they did not recommend active participation at that time. However, they requested information on developments in order that their position could be reviewed at a later date with a view to possible future participation.

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BALLISTIC MISSILE AND SPACE WEAPONS DETECTION SYSTEMS

BALLISTIC MISSILE EARLY WARNING SYSTEM

IMPROVEMENT REQUIREMENTS

(U) (S) NORAD had a requirement for a high-credence, high-confidence ballistic missile early warning system. Since BMEWS was implemented under certain limitations and because of the nature of the expanding ICBM threat, the system in its present configuration would not continue to meet the NORAD requirement. Accordingly, technical improvements were required and additional equipment. In order of importance, NORAD wanted to (a) provide BMEWS with an ECCM capability, (b) extend detection ranges, and (c) provide low-angle gap-fillers.

STATUS

(U) (S) ECCM Capability. Except for ECCM "quick fixes" that had been installed in Sites I and II to provide a limited means of recognizing when they were being jammed, BMEWS had no capability to operate in an ECM environment. Hence, in March 1962, USAF submitted a $43 million program to DOD for improved ECM recognition and analysis fixes as well as active ECCM fixes.* However, when the estimated cost for these fixes rose to $52 million, DDR&E place a hold order and told USAF to reduce its cost back to the original figure. Thus, in November 1962, the Air Force sent a reclama for

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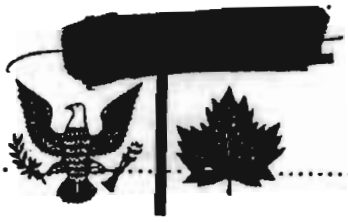
* (U) See NORAD/CONAD Historical Summary, pp. 35 and 36 for details of the ECCM fixes.



$28 million to DOD, essentially for the same fixes except that production funds for the Side Lobe Cancellor, which was still being tested, were omitted.

(U) (S) In January 1963, NORAD learned that a budget ceiling of $12.9 million had been imposed for FY 1963 for the BMEWS ECCM program. This would provide funds for the recognition and analysis features but not active fixes. Without the latter, BMEWS would continue to lack an ECCM capability.

(U) (S) Later, on 28 March, USAF ADC informed NORAD that USAF had approved the Air Force Systems Command's ECCM program for BMEWS and that $8.5 million would be available. Continuation of the total ECCM program to the USAF-approved level of $28 million would be contingent upon authorization of FY 1964, or later, funds.

(U) (S) Extension of Detection Ranges. NORAD's requirement to extend BMEWS range was broadened in 1962 to include a system not only for ERBM's (Extended Range Ballistic Missiles) and high-angle ICBM's, but also for detection and tracking of all satellites on their first orbit. This requirement, among other proposals for BMEWS improvements, was submitted by the Secretary of the Air Force to the Office of the Secretary of Defense. The OSD's response was to ask the Air Force for two proposals -- one program for $200 million and another for $400 million.

(U) (S) Low-angle Gap Fillers. BMEWS was designed and deployed to detect missiles with re-entry angles of between 15 and 65 degrees. However, the current missile threat also envisaged much lower re-entry angles. To plug these low-level gaps, NORAD raised a requirement for a tracking radar at Clear, Alaska, to cover the gap between Sites I and II, and a gap-filler radar either on the north coast of Iceland or the east

coast of Greenland to cover the more important gap between Sites I and III.

(U) (S) The Secretary of the Air Force requested OSD approval for the tracking radar at Clear and the gap-filler between Sites I and III. In response, the OSD told USAF to go ahead with the tracker at Clear and proposed $10 million for the project. OSD also concurred in the gap-filler between Sites I and III as a budget item requirement. However, USAF considered it advisable to restudy the whole requirement before beginning actual installation of the Clear trackers. USAF wanted to determine if a better solution would not be to install a radar between Sites I and II, which would not only fill the low-level gap but would also provide system credibility and capability for detection and tracking of high-angle missiles.

(U) (S) In the meantime, the Secretary of Defense approved re-allocation of $25 million of FY 64 funds to initiate programs to fill low-level gaps in BMEWS as well as to provide an early SLBM detection and warning capability (see below).

SEA LAUNCHED BALLISTIC MISSILE DETECTION

(U) (S) In an attempt to find an immediate solution to the problem of detection of sea launched ballistic missiles, some quick-fix type modifications were made on two FPS-35 radars. Feasibility testing, however, showed that the FPS-35, as modified for this test, did not meet the performance criteria for SLBM warning. Consequently, the USAF Air Defense panel directed ESD to conduct a design study to provide a suitable system. The study, which offered a choice of several systems, was examined by NORAD and ADC and their respective recommendations were forwarded to USAF in March 1963.

(U) (S) ADC recommended the Bendix phased-array radar as first priority for SLBM detection followed in descending order of priority by the FPS-49 (the Moorestown radar type), FPS-35 with a 60-foot tracking dish back-to-back, and FPS-24/26 combination.

(U) (S) NORAD recommended either the FPS-24/26 system or the FPS-35 with the back-to-back 60-foot tracker antenna system, as being capable of providing an adequate SLBM detection and warning capability in view of the current estimated threat. The NORAD recommendation included the stipulation that the program be initiated in FY 1964 with one of these two systems which would provide the earliest possible SLBM detection and warning capability with the least technical risk. At the same time, NORAD asserted that implementation of this program in FY 1964 should not be at the expense of a program to fill the low-angle gaps in BMEWS.

(U) (S) NORAD learned in April that the Secretary of Defense had approved re-allocation of $25 million of FY 1964 funds to initiate programs to fill the gaps in BMEWS and to provide an early SLBM detection and warning capability. The Secretary of Defense directed DDR&E to prepare a Program Change Proposal (PCP) and Headquarters USAF to recommend the most promising of the two proposals as chosen by NORAD.

(U) (S) On 22 May, ADC informed NORAD that the Air Staff supported an AFSC recommendation to undertake competitive bids between the FPS-24/26 and the FPS-35/60-foot dish. Competitive bids would be undertaken as soon as the PCP was approved by OSD and funds were allocated.

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SPACE DETECTION AND TRACKING SYSTEM

USAF SPACETRACK SYSTEM

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(C) In a message addressed to all major Air Force commands and NORAD, on 10 January 1963, USAF set forth the responsibilities of the Department of the Air Force for space detection and tracking. The message clarified the delineation of responsibilities among Air Force organizations and between the Air Force and the operating command (NORAD). It defined the USAF Spacetrack System and restated its mission. It distinguished Spacetrack from the operational system, SPADATS (Space Detection and Tracking System), which had been assigned to NORAD operational control and was comprised of both the USAF Spacetrack System and the U.S. Navy SPASUR (Space Surveillance) System. The USAF message was based on an ADC-prepared concept of the system.

(U)

(C) In addition, USAF assigned the Spacetrack System to ADC. ADC would also continue to function as the operational planning agency for Headquarters USAF.*

(U)

(C) Of particular interest to NORAD was that Spacetrack was given Air Force recognition and command-wide support. USAF authorized ADC to approach all USAF commands possessing operating sensors capable of contributing to the space detection and tracking function, and enter into agreements with a view towards improving the overall capability of the USAF Spacetrack System. In this regard, all USAF commands were enjoined to provide maximum assistance to ADC.

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* (U) In October 1960, ADC was designated as the command to represent the Department of the Air Force in all relationships with CINCONAD and CINCNORAD concerning SPADATS and Spacetrack.

[redacted]

SPADATS BACK-UP

(U) (S) The USAF Spacetrack facility at Hanscom Field had been designated in 1961 as back-up facility in the event of failure of the computer at Ent AFB. However, since then ESD had objected to the use of Hanscom Field R&D facility in an operational support role. Consideration was, therefore, being given to designation of another facility as the primary back-up to replace Hanscom. In the meantime, in March, NAVSPASUR, Dahlgren, Virginia, was designated the secondary computational back-up.

BAKER-NUNN CAMERAS

(U) (S) Background. Baker-Nunn cameras figured prominently in NORAD's plans to improve SPADATS. Until an advanced electro-optical sensor system could be developed to serve SPADATS, NORAD wanted the use of Baker-Nunn cameras to provide data on satellites and space vehicles.

(U) (S) The Air Force originally had five Baker-Nunn cameras in its inventory. One had been given to Canada in mid-1962. Another camera was slated for Chile but the hand-over was held up because of security complications. The remaining three were to be transferred to the National Aeronautics and Space Administration (NASA), but NORAD had managed to delay the transfer.

(U) (S) Altogether there were 17 Baker-Nunn cameras in existence -- the Smithsonian Astrophysical Observatory (SAO) operated 12 cameras in support of NASA.

(U) (S) In July 1962, USAF asked ADC to draw up a plan for the integration of Baker-Nunn cameras into the NORAD SPADATS. ADC submitted its plan in September calling for a basic seven-camera network, in addition to the RCAF-operated camera at

Cold Lake, Alberta. The ADC plan called for taking over three SAO-operated cameras and acquiring additional cameras later if needed as SAO phased them out.*

(U) (S) NORAD concurred in the seven-camera network and added a requirement for two cameras to calibrate the Navy's SPASUR fence. The Secretary of the Air Force and the JCS also concurred in ADC's plan. It was submitted to the Secretary of Defense in November 1962.

(U) (S) Status. On 9 January 1963, the Secretary of Defense responded to the plan for Baker-Nunn cameras. He stated that since the preparation of the plan, several new factors had arisen which required consideration. For one, NASA had decided against phasing out its Baker-Nunn camera operation in July 1963 as planned. For another, Program 706, the only known requirement for the accuracy offered by the Baker-Nunn, had been drastically reoriented.

(U) (S) The Secretary also noted that an analysis of the capabilities and accuracy required by SPADATS and offered by the Baker-Nunn cameras had been omitted from ADC's plan. An analysis of this nature, he said, was a prerequisite to approval of the Baker-Nunn plan.

(U) (S) Accordingly, the JCS asked NORAD, on 12 February 1963, to review the Baker-Nunn requirement in the light of the Secretary's remarks.

(U) (S) NORAD replied to the JCS on 19 March. In the letter, NORAD stated that the requirements for Baker-Nunn camera accuracies in the SPADATS were

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* (U) See NORAD/CONAD Historical Summary, Jul-Dec 1962, pp. 38-40 for details of ADC's plan for Baker-Nunn cameras.

reviewed again. The review convinced NORAD that the accuracy requirements stated in a CONAD letter of 20 April 1961 were still valid. Although the JCS had stated that the requirement for refining orbital elements to the degree of accuracy necessary for the Satellite Inspection Program was no longer urgent, NORAD felt firmly that equivalent support of other anti-satellite programs, as well as its own space programs, would require this accuracy in the very near future. The standard of excellence here, NORAD argued, was the Baker-Nunn camera. Thus, NORAD again supported the ADC plan and confirmed its need for a basic military network of Baker-Nunn cameras under its operational control, as opposed to relying on space observation data from sensors operated by scientific agencies.

(U) (S) Finally, on 9 May, NORAD forwarded to the JCS, an analysis of capabilities and accuracies of the Baker-Nunn cameras, as required by the Secretary of Defense.

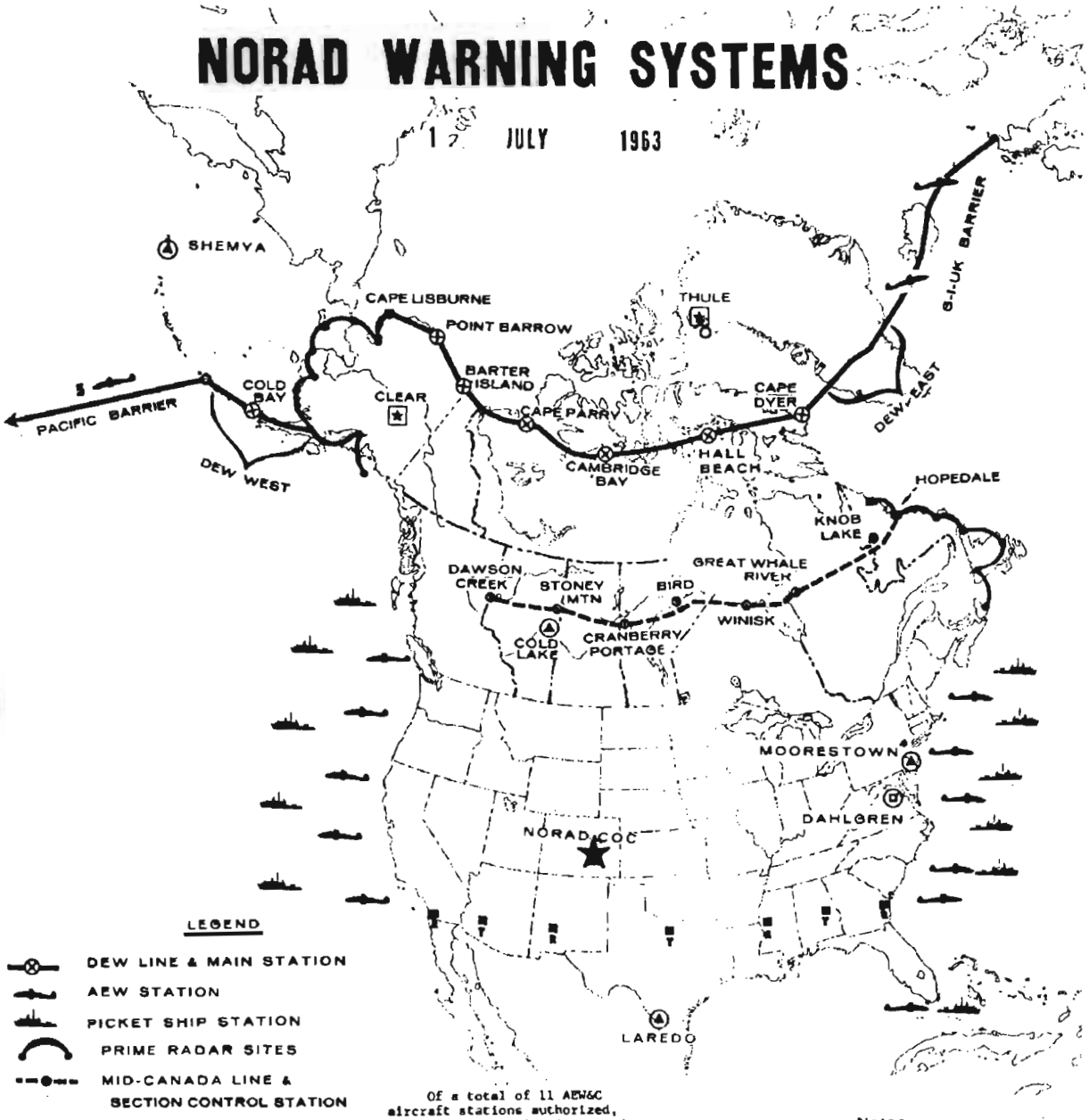
(U) (S) In the meantime, the Canadian Baker-Nunn camera, located at Cold Lake, Alberta and operated by the RCAF, had been placed under the direct operational control of NORAD.

PARL SITE

(U) (S) The Canadian Prince Albert Radar Laboratory (PARL) supplied information to the NORAD SPADATS but only on a parttime cooperative basis. Hence, NORAD sought to increase PARL's contribution. However, the facility was controlled by the Defence Research Board (DRB) which was reluctant to set up a capability for handling classified data essential to SPADATS. NORAD, therefore, suggested to USAF, in December 1962, that when the loan of the U.S. equipment to PARL was renegotiated, the equipment be transferred to the RCAF instead.

NORAD WARNING SYSTEMS

1 JULY 1963



LEGEND

- DEW LINE & MAIN STATION
- AEW STATION
- PICKET SHIP STATION
- PRIME RADAR SITES
- MID-CANADA LINE & SECTION CONTROL STATION
- THULE AC&W RADAR
- BMEWS SITE
- SPADATS SENSOR
- NAVSPASUR FACILITY
- NAVSPASUR: TRANSMITTER (T) RECEIVER (R)

Of a total of 11 AEW&C aircraft stations authorized, the Key West station is manned full time; under normal readiness conditions, the remaining 10 stations will be manned, at random, 30% of the time.

Of a total of 11 picket ship stations authorized, 10 are manned - 5 off each coast.

Notes

- Reports to both COC and SPADATS Center
- Reports to SPADATS Center.
- Part-time operations

(U) (S) NORAD followed up with such a recommendation to USAF on 28 May 1963. To realize the maximum contribution from this radar, NORAD told USAF, the equipment should be operated by a military unit (RCAF) responsive to CINCNORAD. However, if it were necessary to renew the loan with DRB, NORAD recommended that the conditions of the loan provide for a 24-hour availability of this radar for immediate operational tasking and a priority system that would insure appropriate response to certain requests for space observations. Also recommended were adequate facilities for handling classified information and the establishment of an RCAF unit at Prince Albert for the specific purpose of performing SPADATS operations at that facility.

(U) (S) NORAD pursued the matter further in a letter to the JCS on 12 June. NORAD stated it wanted PARL as a full-time SPADATS sensor and requested the JCS's approval in principle and their recommendation to the Chief of the Air Staff, RCAF.

TURKEY SITE

(U) (S) Plans were made at the end of 1962 for NORAD to assume operational control of the radar site at Dyarbakir, Turkey. The site would be operated by ADC as part of the Spacetrack System to gather both SPADATS and intelligence data.

(U) (S) On 1 July 1963, the manning and operation of the Dyarbakir radar was transferred from Security Services to ADC. On the same date, the FPS-79 tracker attained an initial operational capability (the site already had an FPS-17 fixed-beam radar). Also, a 100 WPM secure teletype circuit from Ent AFB to Dyarbakir was activated. However, this circuit proved unsatisfactory and its operation was temporarily suspended pending necessary improvements. Two other communication

links connecting this site to NORAD SPADATS were being put into operation -- an unclassified voice circuit and a tropo-link system.

TRINIDAD SITE

(U) (S) In December 1962, NORAD asked the JCS for operational control of the Trinidad FPS-44 tracking radar for SPADATS use. Trinidad's near-equatorial location permitted the observation of all earth satellites, regardless of the inclination of their orbits. Trinidad had been supporting SPADATS on a more or less parttime basis, but was under the control of AFSC's Air Force Missile Test Center at Patrick AFB, Florida.

(U) (S) The JCS advised NORAD on 9 February 1963, that operational control of Trinidad sites would be transferred to NORAD upon assignment of the facility to ADC for integration into USAF Space-track System. On 5 March, USAF informed ADC that it approved in principle the transfer of the operating responsibility of the Trinidad radar from AFSC to ADC. At the same time, USAF authorized ADC direct liaison with AFSC to prepare a transfer agreement.

(U) (S) In the meantime, however, OSD and DDR&E expressed concern over ADC's capability to meet the requirements of other users of the Trinidad facility, namely USN, USA and ARPA. Consequently, OSD and DDR&E directed the Air Force to withhold transfer action until this and other factors were considered. USAF said it did not appear that a decision on the transfer would be made prior to 1 January 1964.

COMMAND AND CONTROL

USE OF NORTH BAY FOR THE NORAD ALCOP

BACKGROUND

(U) The 29th Region Headquarters, Richards-Gebaur AFB, Missouri, was the NORAD and CONAD alternate command post (ALCOP).* The facility was fixed and soft, however. In October 1960, the JCS had directed all unified and specified commands and the services to have alternate command elements in hardened, dispersed or mobile facilities by 1 July 1961. NORAD and ADC proposed automating the ALCOP as one means of improving it. USAF turned this down, however, feeling that the ALCOP did not meet the JCS standards, and suggested use of the hardened North Bay, Ontario, DC/CC. Both ADC and NORAD supported this proposal.

(U) USAF then queried RCAF Headquarters, asking for approval. On 23 October 1962, RCAF agreed in principle to the concept of locating the NORAD ALCOP at North Bay. NORAD told USAF ADC that because of the immediate need to relocate, the facility should be set up initially in a manual mode and later phase into automatic operation.

APPROVAL AND FUNDING

(U) Nothing further happened toward implementation, however, so early in February, CINCNORAD wired the Air Force Chief of Staff stressing the

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* (U) The 30th Region Headquarters, Truax Field, Wisconsin, was the secondary NORAD and CONAD ALCOP.

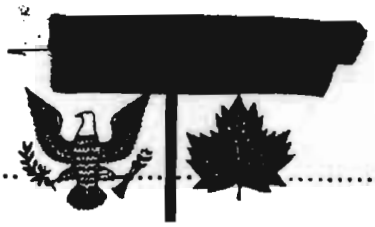
need for a manual ALCOP at North Bay and immediate support. When no answer was received, NORAD urged ADC to follow up on it, pointing out the importance of immediate USAF attention. USAF answered finally, on 5 March, with the advice that no FY 1963 funds were available and the recommendation that the requirement be sent through NORAD/JCS channels. On 16 March, ADC reaffirmed the requirement in detail to USAF and on 26 March, NORAD made a strong appeal to the JCS.

(U) On 3 May, the JCS approved relocation of the NORAD ALCOP. On 17 May, USAF advised that it had approved implementation of the manual ALCOP and action was being taken to obtain funds. On 5 June, USAF released $870,000 to the AFSC. These funds were for the test bed at Hanscom Field and installation at North Bay. Release of funds from the Systems Command would be made subsequent to approval of a Proposed Systems Package Program being prepared by ESD. January or February 1964 was set as the possible operational date.

FUTURE USE OF NORTH BAY

(U) NORAD had planned to have an automated ALCOP at North Bay eventually, but this and other uses and the survivability of North Bay came in for close examination at mid-year. In June, RCAF told NORAD of the crowded conditions at North Bay. The manual ALCOP could be put in only by crowding, RCAF said, and it was extremely doubtful that an automated ALCOP could be installed without major changes in the DC/CC. One solution was to excavate a new area, but this would be very expensive. The RCAF suggested, therefore, that NORAD establish priorities for the functions to be located at North Bay.

(U) RCAF also said it was engaged in studies of the survivability and use of the facility which indicated a need for replacement of the FSQ-7 computer with a more survivable one. The BUIC computer was suggested. RCAF felt that if



all the equipment within the hardened center could be made acceptably survivable, there would be little logic in providing a soft backup, such as BUIC II, for the Ottawa Sector. A change in computers might ease the space problem within the DC/CC and the possibility existing of combining functions, such as the ALCOP with the CC.

(U) Later, the shortage of space was reaffirmed by both RCAF ADC and RCAF Headquarters in commenting on drafts of a NORAD requirement and operational employment concept. ADC said that space for an automated ALCOP could be provided only by reconfiguration of the CC/DC, or excavation of a new cavity. RCAF Headquarters said that an ALCOP designed to meet NORAD's requirements could not be accommodated without major reconfiguration.

(U) In the meantime, a joint USAF/RCAF study of the survivability of the North Bay facility was proposed by RCAF. USAF advised ADC of its desire to assist. ADC asked for NORAD's comments and point of contact. NORAD said it considered the study appropriate and that all assistance possible should be provided.

BACKUP INTERCEPTOR CONTROL (BUIC)

CURRENT PROGRAM

(U) Background. The Secretary of Defense told the JCS in June 1961 that USAF and DOD studies had agreed that a missile attack on SAGE and other vital elements of NORAD's command and control system could destroy NORAD's ability to carry out its mission. The Secretary said that these studies had also agreed that the peacetime and pre-battle advantages of the SAGE system should be kept, but he directed that further air battle augmentation of the system be stopped. The money saved and subsequently funded was to be used to build a survivable backup control system.

(U) (S) The approved backup system was announced by USAF on 1 November 1961. The system was to be established in two phases. Phase I was to provide a manual control similar to the pre-SAGE operation; Phase II was to provide semi-automatic control at 34 selected radar sites (thirty in the U.S., four in Canada). The Secretary of Defense approved the two-phased plan on 13 March 1962. He directed implementation of Phase I as soon as possible and gave authority to proceed with Phase II providing the costs remained within the $100 million limit set earlier. The initial equipment buy for Phase II was to be for 17 NCC's.

(U) (S) Under Phase I, there were to be 27 NCC's and 37 ground control intercept stations (NGCI's) established at existing radar sites. Surveillance stations were to be netted to report tracks to the NCC's. Initial operation, for the most part, had been achieved for Phase I in the CONUS by the end of CY 1962 (the 30th Region was delayed until March 1963).

(U) (S) The 34 Phase II NCC's were each to be equipped with the AN/GSA-51 semi-automatic data processing and display computer provided by the Burroughs Corporation. As established by USAF in January 1962, the computer specifications would call for a netting of five radar inputs, ten simultaneous intercepts, and 40 track capability. Operation of the 34 NCC BUIC system was set for late 1965.

(U) (S) RCAF Phase I Approval. On 26 February 1963, the RCAF advised that it approved implementation of BUIC Phase I in all sectors affecting Canada. The operational date for Phase I, the RCAF stated, was planned to be coincident with the SAGE operations date of the site concerned.

(U) (S) Phase II Deployment Schedule. On 27 April 1962, NORAD first laid down deployment priorities for Phase II NCC's. NORAD adjusted these

priorities on 1 February 1963 to assure manual NCC capability during installation of BUIC II. First priority was given to Z-45, New York Sector, which was to be operational on 15 October 1964; priority 34 was given to Z-114, Montgomery Sector, which was to be operational on 31 December 1965.

(U) This schedule lasted until 15 April 1963 when, because of the program to phase out 416L facilities (see Chapter I), the priorities and locations were changed. The 416L reductions caused changes in region/sector boundaries which, in turn, required some Phase II BUIC's to be relocated and altered priorities. NORAD said its priorities would provide an early capability in the BOMARC area and also a backup to those sectors not having a SAGE Mode II.

(U) Site Z-10, North Truro AFS, Massachusetts, was now given first operational priority and site Z-198, Tyndall AFB, Florida, 34th place. Six previous locations were deleted and six new ones added. NORAD asked ESD to realign its master installation schedule so that computers would not stand idle and Phase I Mode III capability would not be disrupted.

(U) On 4 June, USAF approved the first seven sites on NORAD's list. The RCAF had not approved the BUIC II sites recommended for Canada by NORAD. But to prevent further slippage of the program, it was necessary that site selection and priority be established for the initial part of the program. Operational dates for the first seven sites ran from 15 January 1965 for Z-10 to 1 July 1965 for the seventh site, Z-27. AFSC was to arrange installation schedules so as to maintain program integrity and minimal interference with manual operations.

(U) RCAF Position on BUIC II. On 17 June, the RCAF advised that efforts would be made to increase, as much as practical, the hardness of

the North Bay facility to include replacement of the FSQ-7 with a smaller, solid-state computer.* Assuming that this would prevent the sector control facility from becoming inoperative, a relatively austere backup capability would be provided by continuation of a manual backup, such as BUIC Phase I. Unless there was clear evidence of a supersonic dash threat, the RCAF continued, the RCAF did not favor implementation of BUIC II in the Ottawa Sector at this time and supported replacement of the FSQ-7 by diverting the two BUIC computers from the Ottawa Sector. The RCAF added that it continued to support the need for BUIC II in other NORAD sectors.

IMPROVED BUIC

(U) Background. Because of fund limitations, the BUIC program approved was not as extensive and the computer did not have the capacity that NORAD wanted. NORAD had proposed a system of 70 automated NCC's and a computer capability of up to 40 simultaneous intercepts and 160 surveillance tracks. In addition, NORAD had developed the idea of increasing tactical flexibility and survivability by making the BUIC equipment transportable. The latter was first expressed in a letter to ADC on 8 August 1962. NORAD said it had learned that the Burroughs equipment had the inherent capability to handle more than five radar inputs and increased tracks and so recommended increasing the capability for selected NCC's. Secondly, NORAD recommended a transportable configuration for BUIC II.

(U) These concepts were then more fully developed and in September 1962, NORAD formally presented its proposals for a system it called TRACE

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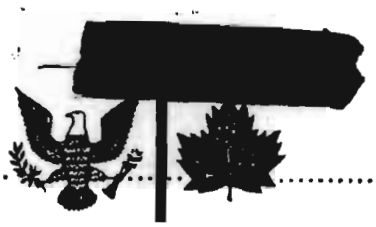
* See section on ALCOP, Future Use of North Bay, this chapter.



(Transportable Automated Control Environment) to the Secretary of Defense. This was in response to a request for data on manned bomber defense. TRACE was essentially the BUIC II system expanded in capacity and given transportability. But NORAD proposed that it become the primary system, replacing SAGE. NORAD's TRACE system would require four more NCC's than BUIC II, or 38. The transition plan called for SAGE to be entirely replaced by TRACE by FY 1967.

(U) NORAD urged action on a decision for a transportable configuration through ADC in November 1962. Such a decision was required to stop construction work on BUIC II sites. In November and December, ADC sent requests to USAF for increasing BUIC capacity and providing transportability.

(U) Actions to Mid-1963. By March, with no decision having been made, NORAD wrote to the JCS to emphasize the need for action. NORAD recommended that the BUIC program be amended progressively to increase its capacity and make the equipment transportable. The JCS answered on 4 April, pointing out that the Secretary of Defense had directed the Air Force to conduct a Continental Air Defense Study for the 1966-1975 period to provide a basis for decisions on air defense weapons and surveillance and control systems. NORAD's views would be furnished the study group. But in view of the study, no program changes would be made at the time.

(U) NORAD included TRACE in its NADOP 65-74, dated June 1963. This plan called for 18 BUIC II NCC's through FY 1966. In FY 1966, 16 TRACE NCC's would come in, increasing to the full 38 in FY 1967, according to the NORAD proposal. In addition to making the NCC transportable, NORAD wanted to increase NCC capability to 100 tracks and 20 simultaneous intercepts and capacity to eight prime radar inputs.

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(U) But the Air Force study report, mentioned above, Continental Air Defense Study Report, 10 May 1963, recommended an Improved BUIC/AWAC* system, instead of TRACE. Improved BUIC would become the primary command and control system, replacing SAGE. The SAGE DC's would be phased out concurrent with an operational system. In the CADS system, there would be 46 Improved BUIC centers (four as CC's and three in each of 14 sectors), backed up by 39 manual control centers. USAF had forwarded the CADS Report to the Secretary of Defense at mid-year.

COMMUNICATIONS

SWITCHED COMMUNICATIONS

(U) In 1960, NORAD, ADC, and commercial communications companies developed a concept for an automatic dial telephone switching network. Approval for a first phase of this network, to establish nine switching centers to serve NORAD regions, was given in July 1961. Phase I was to be in service by 1 November 1963. Phase II was to extend and expand the service with approximately 18 more switching centers.

(U) There was a misunderstanding, however, as to approval of the second phase. NORAD had assumed that the whole program was approved and would be implemented in phases. But Phase II had to be processed as a new telecommunications requirement in accordance with DOD Directive 4630.1, 12 December 1961 (Processing of Telecommunications Requirements and Program Objectives), because of

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* (U) Airborne warning and control - described as a C-135B aircraft with radio relay and battle management capability plus a 350-mile radar surveillance capability. AWAC would provide survivable surveillance, weapons control, and battle management.

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its cost, whereas Phase I was exempt from the scope of this directive. Also there was delay in submitting the requirements for Phase II because of some confusion over whether ADC or NORAD should submit them.

(U) At any rate, the matter was straightened out and NORAD submitted the Phase II requirements on 24 January 1963. The program objective data set an estimated completion date of 1965.

(U) A third part of the switching system was to provide communications for the BUIC II system. A total of approximately 70 centers were required for the latter. USAF ADC submitted a requirement for BUIC II communications in September 1962. The some 70 centers required included the nine Phase I centers and the 18 Phase II centers, i.e., the BUIC II requirement was for approximately 43 more centers to make a total of around 70 in all.

(U) Integration with DCA's AUTOVON. Early in January 1963, the JCS forwarded the Defense Communications Agency's AUTOVON (Automatic Voice Network) Implementation Plan to CONAD, requesting comments. AUTOVON was to be part of the Defense Communications System being established as the single long-haul system for all elements of the DOD. DCA's AUTOVON plan called for initial integration of the NORAD/ADC Phase I centers which included the four Army SCAN (Switched Circuit Automatic Network) centers which were collocated with four of the NORAD/ADC centers. DCA stated that AUTOVON would increase reliability and survivability by providing route redundancy, the capability to spill over into the nationwide commercial direct-distance-dialing network which would give unlimited facilities, locating switching centers outside target areas, and using bypass routes for circuits. Flexibility would be increased by rapid expansion capability, automatic alternate routing, abbreviated dialing, priority pre-emption, and high-quality four-wire service.

(U) CONAD's reply to the JCS on 21 January recognized the improved capability, but made certain recommendations. AUTOVON would be operating 24 months after ordered, but NORAD's Phase I switching system would be in service by November 1963. CONAD wanted to know whether these centers would be used as a common system at the latter time or whether NORAD would have exclusive use until AUTOVON's implementation. If the former was the case, CONAD said NORAD must have a priority of pre-emption to its ALCOP's and regions.

(U) The AUTOVON plan did not provide for the switching centers of the NORAD/ADC BUIC II plan. Included in the NORAD/ADC requirements was a requirement to integrate the BUIC II switching system with the NORAD/ADC switching network. So CONAD recommended that the AUTOVON network be expanded to include the BUIC II system. However, since this would take time, CONAD asked that action on BUIC not be held up pending a connection to AUTOVON. Also, the BUIC requirement included a requirement for voice, data, and teletype switching capability. But AUTOVON satisfied the requirement only for voice. CONAD asked that AUTOVON also include data and teletype. Finally, CONAD asked that DCA consider a requirement for negotiations with Canada in regard to communications systems that crossed the border.

(U) A number of NORAD's needs were met in the ensuing months. First, at a meeting in February, NORAD, DCA, and JCS representatives agreed on the following:

> (1) Action would be taken to implement the NORAD/ADC requirements by integrating the common NORAD/ADC-SCAN switches and the trunk group interconnecting those switches.
>
> (2) Integration would provide for dedicated circuitry to be available only

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to selected members of the NORAD battle staff at NORAD, region, sector, and NCC.

(3) Integration would provide for trunk pre-emption capability to selected staff positions at NORAD, region, sector, and NCC.

(4) In each case, NORAD would select those subscribers to be so connected.

(5) Service would be provided to other subscribers on a common-user basis within the integrated network.

(6) Engineering and installation of the present NORAD/ADC switches would continue so that the 1 November 1963 operational date would not be affected.

(U) On 4 May, the Deputy Secretary of Defense approved for implementation the combining of the SCAN network with the projected NORAD/ADC automatic switched system and the expansion of this combined network to meet common user requirements of certain additional DOD voice subscribers in the CONUS. The Director, DCA, was assigned responsibility for implementation of this program. On 8 May 1963, the Office of the Assistant Secretary of Defense (Installations and Logistics), in a memo to DCA and the Air Force, approved the BUIC II communications requirements for implementation as an Air Force operated element of the DCS. Implementation was to be accomplished by expanding AUTOVON on a priority basis.

(U) The first integration with AUTOVON was to be on a phased basis. On 1 November, the Hillsboro, Missouri, and the Monrovia, Maryland, centers were to be integrated into AUTOVON. The integrated trunks were to be tested from 15 to 27 November to determine whether NORAD requirements were satisfied. If the tests proved the system

successful, full integration of the rest of the centers would be made around 15 February 1964.

(U) NORAD was to have priority pre-emption of the NORAD/ADC circuits. At mid-year, the technical aspects of providing priority access to the National Military Control Center and its alternates to the NORAD/ADC and SCAN netowrks were being explored. NORAD believed that additional trunking would be required.

SURVIVABLE LOW FREQUENCY COMMUNICATIONS SYSTEM

(U) NORAD had included a requirement for provision of a low-frequency point-to-point radio system in its NORAD/SAC Northern Area Communications Objectives Plan sent to the JCS in May 1962. A requirement for such a facility was contained in USAF Specific Operational Requirement 193, 29 September 1961. This SOR included a three-transmit and receive complex for the NORAD hardened COC and one transmit and receive station at each BMEWS site. NORAD had concurred with these requirements. DOD had not approved the USAF system, however.

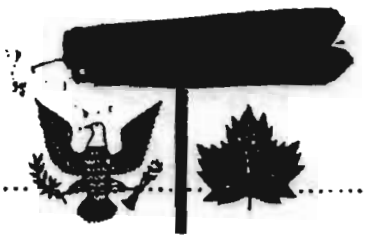
(U) In January 1963, USAF directed a revision of the SOR in accordance with a plan for initial operating capability and final operational capability. The IOC, to be achieved by December 1965, included two transmit/receive installations at Omaha, Nebraska (SAC), one at March AFB, California (SAC alternate), and one at Washington, D.C. (JCS). In addition, AFSC was to investigate the possibility of refurbishing the Thule to Ent low frequency equipment to provide a capability to transmit to NORAD. The FOC was to include three transmit/receive capabilities for the NORAD COC.

(U) NORAD met with ADC and the SLFCS project office from ESD in March and presented its overall requirements. Included in these was a request to have one of the transmit/receive facilities

planned for the IOC to be installed at the NORAD COC in December 1965 in view of the refurbishing of the Thule transmitter. This would enable NORAD to pass warning information from Thule to the JCS and SAC. Other T/R capabilities would not be available until 1967. NORAD also sent its over-all requirements to the JCS on 22 March in response to a request from the latter.

(U) The proposed USAF SOR revision did not provide for NORAD's request for a T/R facility at the NORAD COC by December 1965, still allotted two sets for SAC at Omaha, one for March AFB, and one for the JCS. The new SOR did provide for a VLF transmitter at Thule to transmit last-ditch warning information to NORAD. NORAD continued to insist on receiving one of the facilities for its COC in the IOC so it could re-transmit Thule warning information and appealed to the JCS. The latter replied on 11 June that NORAD would have to submit a request in accordance with DOD Directive 4630.1 because the over-all SLFCS program had not received DOD approval.

(U) On 9 July, NORAD submitted its request and included all of its low frequency communications requirements. For providing last-ditch survivable communications for NORAD command, control, and alerting purposes, NORAD requested a total of 21 transmit/receive (two in FY 1966, 19 in FY 1967) and 30 receive-only stations (22 in FY 1966, eight in FY 1967). Transmit/receive facilities were required for the NORAD COC (FY 1966 - 1, FY 1967 - 2), NORAD and CONAD/ALCOP's, NORAD regions, BMEWS sites, selected SPADATS sites, and the COSC and COSC alternate. Receive-only facilities were required at the NORAD COC, NORAD and CONAD ALCOP's, NORAD regions, COSC and COSC alternate, NORAD sectors, Alaskan region alternate, Perrin AFB NCC, and the Office of Civil Defense regions.



VOICE SECURITY COMMUNICATIONS PLAN

(U/S) NORAD Headquarters had a limited secure voice capability with the JCS, COSC, other unified and specified commands, and certain other key command centers, using KY-9 equipment. The CONUS regions were provided KY-9 equipment during the first six months of 1963. Northern NORAD Region was provided a KY-9 from the COSC in May and Alaskan NORAD Region was sharing a KY-9 with CINCAL. USAF ADC Headquarters had a KY-9, ARADCOM Headquarters had KO-6 equipment, and all ARADCOM region headquarters had KO-6 installations.

(U/S) In response to a JCS request (in September 1962), NORAD prepared and submitted a five-year voice security communications plan (1963-1967), dated 1 March 1963. This plan, as amended, combined all of NORAD secure voice requirements and assigned responsibility to component commands for further planning and programming for internal and unilateral systems. In this plan, NORAD stated that the system in use and programmed (KY-9) for NORAD was not adequate in voice quality, could not be conferenced, required special conditioned circuits, was difficult to maintain, and operated on a half-duplex basis.

(U/S) NORAD proposed the HY-2/KG-13 long-haul secure voice equipment and the KY-3 short-haul equipment. By FY 1965, NORAD wanted 40 KY-3 equipments for installation at NORAD Headquarters, the NORAD COC, the NORAD ALCOP's, and USAF ADC and ARADCOM Headquarters; and 42 HY-2/KG-13 equipment for installation at the NORAD COC, NORAD ALCOP's, ADC Headquarters, the COSC and COSC alternate, and all the NORAD regions. The KY-9 equipment would be phased out. ADC was to program for CONUS sectors. The component commanders were asked to program HY-2/KG-13 equipments for their subordinate commands to be installed in conjunction with the NORAD installations.

(U/S) NORAD learned from the JCS and DCA in June that a world-wide automatic secure voice

network was being developed by DCA to serve all subscribers. The JCS later advised, in reply to a NORAD query, that the DCA had incorporated NORAD's secure voice requirements in the DCA plan. ADC and ARADCOM requirements had not been included, however, because separate action had been initiated to provide those requirements.

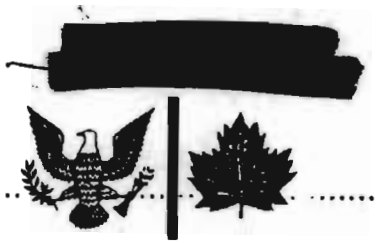
VOICE ALERTING SYSTEM

(U) On 1 April 1963, the NORAD Voice Alerting System became the primary means of passing alert information to the NORAD system and other agencies concerned. At the same time, the Readiness and Warning Teletype Network Number 1 was discontinued. NORAD had started action back in March 1961 to get a faster alerting system in the ICBM era. The original operational date for the VAS, 7 December 1962, had been delayed because of the Cuban crisis.

AUTOMATIC ATTACK WARNING SYSTEM

(U) Back in 1961, NORAD had asked ADC to work up a study on the feasibility of an automatic attack warning system, one that would be triggered automatically by the BMEWS, NUDETS, Bomb Alarm and other sensors into giving instant warning to all NORAD combat units. ADC turned the problem over to AT&T which produced a communications plan in March 1962. NORAD accepted the AT&T plan in principle and gave ADC detailed requirements to be worked into the plan. In the meantime, NORAD set up an interim manual system using the existing Readiness and Warning Network.

(U) On 22 May 1962, NORAD submitted requirements to the JCS for meeting its needs for increasing the survivability and reliability of NORAD communications. An automatic attack warning system was included. In July 1962, the JCS forwarded the requirement to the DCA, validating it and requesting a systems plan be prepared.



JCS, NORAD, and SHAPE had been reached to the requirement and the means of communication for a direct point-to-point voice circuit between the command posts of NORAD and SACEUR.

(U) (S) In January 1963, SHAPE and NORAD representatives met to determine what data should be exchanged, the procedures, and the requirements for placing the circuit in operation. It was agreed that SHAPE would continue passing NATO Europe early warning messages in the form of changes in the air situation and reason reports.* SHAPE would report SACEUR's and major subordinate commanders' reaction to the changes by reporting any category of alert declared. NORAD would report DEW Line, BMEWS, and U.S. Bomb Alarm System information simultaneously with such reports to the U.S. and Canadian agencies by seizing this direct circuit for inclusion in NORAD's air defense alert reporting system. Both commands, it was agreed, would employ the TRITON KAA-29 authentication system.

(U) (S) On 11 April, the JCS provided the following guidance and authority. The reporting of significant, evaluated BMEWS and U.S. Bomb Alarm System information to SHAPE was authorized. The SHAPE/NORAD circuit could be included in the NORAD air defense alert reporting system, providing there was no degradation of the system. Release to SHAPE of the necessary parts of Regulation 55-3 was authorized. Finally, SHAPE was authorized to use a unique authentication system provided by the U.S. and held in common only by the NORAD and SACEUR command posts.

(U) (S) In place of the KAA-29, which had been planned to be used, the TRITON Voice Authentication

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* (U) (S) NORAD received SHAPE situation reports through Washington and SAC.

(U) In February 1963, the DCA provided a systems plan for satisfying NORAD's requirement. The proposed system would provide an interim capability utilizing existing point-to-point circuits. When integration of the latter into the AUTOVON automatic switch network was accomplished, the system was to be incorporated into the AUTOVON switching system, if such was feasible.

(U) NORAD submitted a Qualitative Requirement for an automatic attack warning system to the JCS on 1 April 1963. This NQR called for an AAWS that would provide simultaneous and instantaneous attack warning to approximately 200 subscribers. It stated that the AAWS would not duplicate or nullify the requirement for the Voice Alerting System. NORAD wanted the system to be operational by 31 December 1963. Earlier, NORAD had evaluated the possibility of substituting the Voice Alerting System for the AAWS. This investigation showed, however, that expansion of the VAS was not technically feasible.

(U) On 7 June, the JCS recommended approval of the proposed DCA system to the Secretary of Defense. The Air Force had included funds for this request in its FY 1964 financial plan.

NORAD/SHAPE EARLY WARNING VOICE CIRCUIT

(U) Back in December 1958, Supreme Headquarters Allied Powers Europe (SHAPE) proposed to NORAD that the two commands exchange early warning information. NORAD felt that there was a need for such and representatives of the two commands met the following April. They agreed that exchange of early warning information was desirable and that both commands would conduct detailed studies of what information was to be exchanged and the communications and display facilities needed. There followed numerous conferences, studies and correspondence. By 1962, agreement by

[redacted]

System ASMP 614, held by SHAPE and NORAD, was to be used for authentication. Also, because of difficulties with adding the SHAPE circuit to the existing NORAD voice alerting network, it was decided that the NORAD/SHAPE circuit would be installed as a controller-to-controller circuit.

(U) Once the circuit was established, numerous troubles cropped up and it could not be operated successfully. Among the problems were difficulties with a microwave link and with signaling equipment at the terminals. As a result, the circuit, scheduled for operation on 1 March 1963, was not yet fully operational as of mid-year.

(1 Mar 1963)

[redacted]

WEAPONS

STATUS OF FORCES

INTERCEPTORS

(U) General. The NORAD regular interceptor force was reduced from 49 to 45 squadrons and from 978 to 929 assigned aircraft during the first half of the year. These reductions were associated in most part with withdrawal of U.S. Navy/Marine interceptor forces, introduction of F-104's into regular squadrons, and extensive redistribution of interceptor resources.*

(U) USAF Air Defense Command. NORAD had a requirement for a high-performance interceptor in the southeast area of the U.S. to combat the MIG 21 threat from Cuba. None of the regular ADC squadrons was equipped with interceptors which would satisfactorily perform the fighter-versus-fighter role. To meet NORAD's requirement, on 12 January 1963, DOD approved the re-equipping of two regular ADC squadrons with F-104 aircraft -- the 331st FIS at Webb AFB, Texas, and the 319th FIS, which was to be relocated from Bunker Hill AFB to Homestead AFB, Florida. To make room for the 319th FIS at Homestead, the F-102 force was reduced at that base to six aircraft.**

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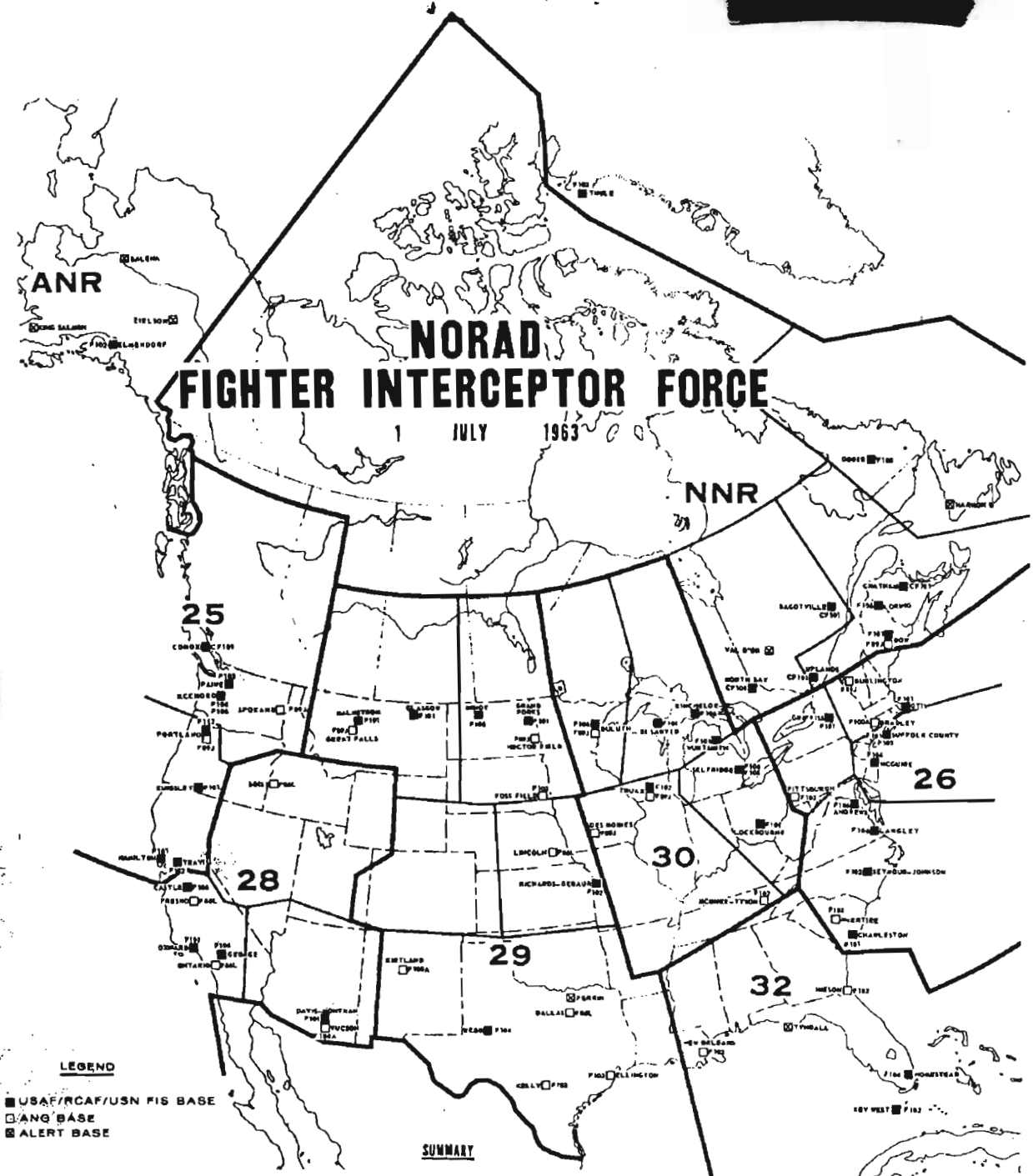
* (U) In addition, there was one F-101 squadron programmed reduction for FY 64 -- 83rd FIS at Hamilton AFB.

** (U) For detailed information on Southeastern U.S. defenses, see Chapter 8.

[redacted]



NORAD
FIGHTER INTERCEPTOR FORCE
1 JULY 1963

SUMMARY

REGULAR FIGHTER INTERCEPTOR FORCE

5	CF-101	SQDNS
16	F-101	SQDNS
9	F-102	SQDNS
2	F-104	SQDNS
13	F-106	SQDNS
TOTAL 45		SQDNS

ANG FIGHTER INTERCEPTOR FORCE

5	F-86L	SQDNS
9	F-89J	SQDNS
3	F-100A	SQDNS
8	F-102	SQDNS
TOTAL 25		SQDNS

[redacted]

(U) (S) As planned, the 319th FIS (less equipment and personnel) moved from Bunker Hill AFB to Homestead AFB on 1 March 1963. Its F-106's were redistributed within ADC. The aircrews for this squadron transitioned to F-104's at McGhee-Tyson AFB. By 15 April, the first two F-104 aircraft of 319th FIS were placed on alert at Homestead AFB under the operational control of the Montgomery NORAD Sector.

(U) (S) The second regular ADC squadron to receive F-104's, the 331st FIS at Webb AFB, at midyear was in the process of converting from F-102's to F-104's. It was to be fully operationally ready by 15 August.

(U) (S) The F-104's necessary to equip the 319 FIS and 331 FIS were taken from two ANG squadrons -- 151 FIS McGhee-Tyson, Tenn., and 157 FIS at McEntire ANGB, S.C. These two ANG squadrons received, in exchange, 24 F-102's (non-GAR-11) from ADC resources. This in turn necessitated ADC inactivating the 76 FIS at Westover AFB (F-102's) and reducing the 332 FIS at Thule to six F-102's.

(U) (S) U.S. Navy/Marine Corps. The U.S. Navy/Marine interceptors, which had contributed to the air defense of the southeast area during the Cuban crisis, were all withdrawn from that area by midyear. On 1 February, the U.S. Navy VF(AW)-3 Detachment at Key West was relieved of its NORAD alert commitment to return to its home squadron at San Diego. The entire squadron was relieved of its alert commitment on the West Coast on 1 March and decommissioned on 1 April.

(U) (S) Also, on 1 February, U.S. Navy VF-41 Squadron (F-4B's) was withdrawn from Key West. It was replaced at Key West by U.S. Marine Squadron detachment with 12 F4B's, Detachment 14, VMF (AW)-531. Finally, on 15 June, this Marine squadron was withdrawn and replaced by a detachment of six F-102's from the 482nd FIS, Seymour-Johnson AFB.

BOMARC

(U) The BOMARC force remained unchanged during the period. There were ten squadrons -- eight in northeastern U.S. and two in eastern Canada (less warheads). Two squadrons had A missiles, five had B missiles, and three had a mixture of A and B missiles. The assigned missile strength was 457 -- 207 A and 250 B missiles.

NIKE HERCULES/AJAX

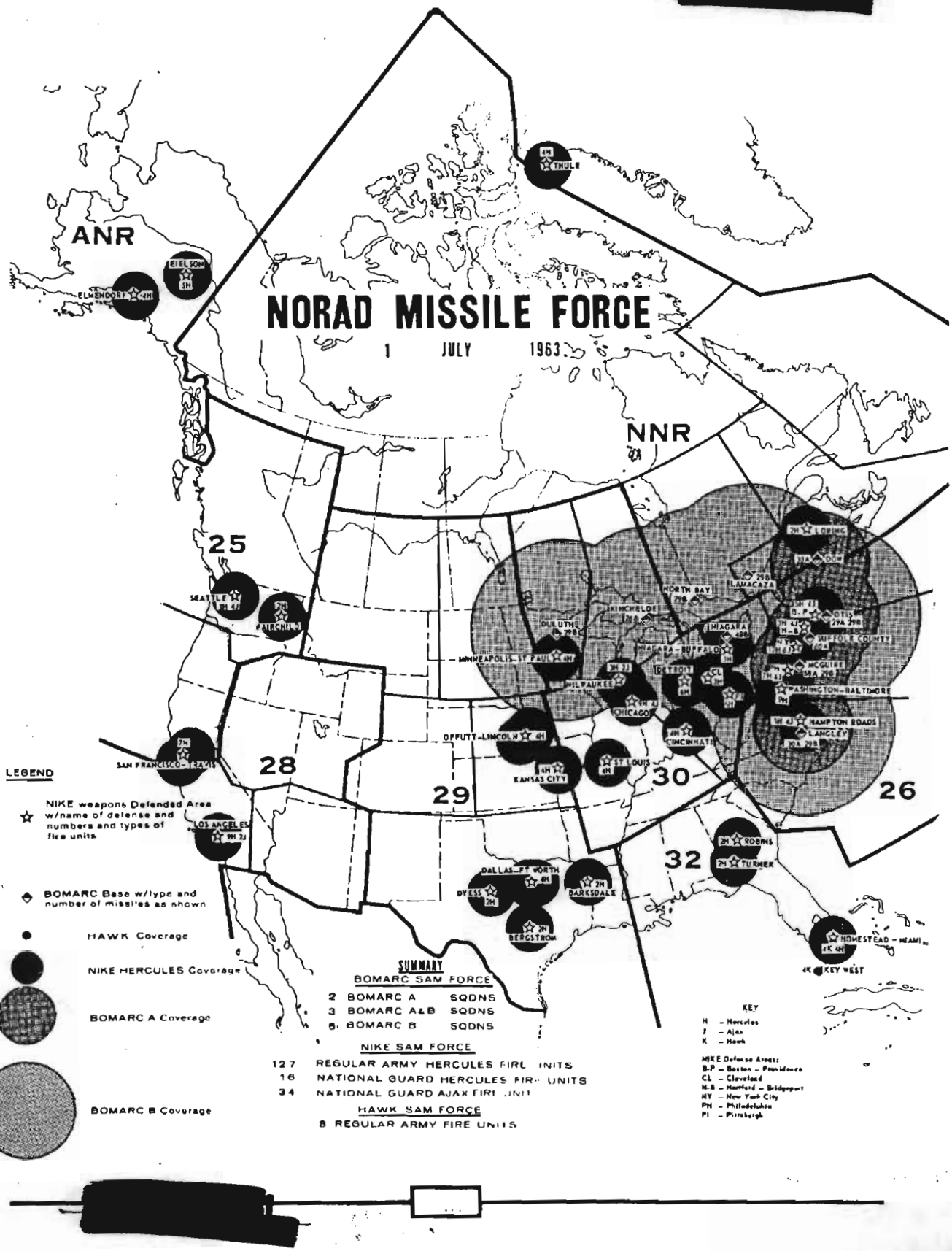
(U) The program to phase out the Army National Guard's Nike Ajax missile force and to transfer 48 of the Regular Army's Nike Hercules sites to the ARNG continued. Fourteen more Ajax fire units were phased out during the first half of 1963, leaving 34 Ajax fire units remaining in the ARNG. A total of 16 Hercules fire units had been transferred from RA to ARNG at mid-year.

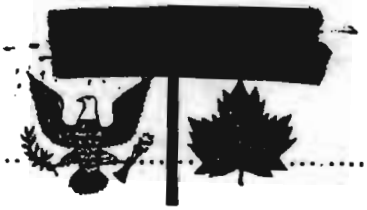
(U) During the Cuban crisis in October and November 1962, one Hercules battalion of three fire units had been deployed from Army resources to Homestead AFB as a temporary measure to bolster the defenses in the southeast area. On 2 January 1963, CONAD submitted a requirement to the JCS for permanent transfer of this battalion, as well as two Hawk missile battalions (see below). The Secretary of Defense approved transfer on 13 February.

(U) Accordingly, on 1 April, the 2nd Missile Battalion, 52d Artillery, Hercules, was assigned to ARADCOM from CONARC. The missing fourth fire unit was moved to Homestead AFB and assumed alert duty on 12 July. This increased the NORAD assigned Hercules missile force from 139 to 143 fire units.

HAWK

(U) Two Hawk battalions of two batteries each had also been deployed to the southeast area during


NORAD MISSILE FORCE
1 JULY 1963
ANR
NNR
25
28
29
30
32
26
THULE
EIELSON
ELMENDORF
SEATTLE
FAIRCHILD
SAN FRANCISCO - TRAVIS
LOS ANGELES
MINNEAPOLIS - ST PAUL
DULUTH
KINCHELOE
NORTH BAY
ILAMAMA
NIAGARA
BUFFALO
OTIS
SUFFOLK COUNTY
MCGUIRE
WASHINGTON - BALTIMORE
HAMPTON ROADS
LANGLEY
DETROIT
MILWAUKEE
CHICAGO
CINCINNATI
OFFUTT - LINCOLN
KANSAS CITY
ST LOUIS
ROBINS
TURNER
DALLAS - FT WORTH
DYESS
BARKSDALE
BERGSTROM
HOMESTEAD - MIAMI
KEY WEST
LEGEND
NIKE weapons Defended Area w/name of defense and numbers and types of fire units
BOMARC Base w/type and number of missiles as shown
HAWK Coverage
NIKE HERCULES Coverage
BOMARC A Coverage
BOMARC B Coverage
SUMMARY
BOMARC SAM FORCE
2 BOMARC A SQDNS
3 BOMARC A&B SQDNS
5 BOMARC B SQDNS
NIKE SAM FORCE
127 REGULAR ARMY HERCULES FIRE UNITS
16 NATIONAL GUARD HERCULES FIRE UNITS
34 NATIONAL GUARD AJAX FIRE UNITS
HAWK SAM FORCE
8 REGULAR ARMY FIRE UNITS
KEY
H - Hercules
J - Ajax
K - Hawk
NIKE Defense Areas:
B-P - Boston - Providence
CL - Cleveland
N-B - Hartford - Bridgeport
NY - New York City
PH - Philadelphia
PI - Pittsburgh



the Cuban Crisis. The Hawk was required to provide low-level defense against attacks on southern Florida by short-range, high-performance fighter aircraft. The requirement to retain these battalions was also included in the CONAD submission to the JCS in January. Thus, on 1 April, the 8th Missile Battalion, 15th Artillery, Hawk, located at Homestead AFB, and the 6th Missile Battalion, 65th Artillery, Hawk, located at Key West, were assigned to ARADCOM.

INTERCEPTOR DISPERSAL PLANS

(U) (S) The JCS directed NORAD in June 1961 to develop plans for increasing the survivability of the air defense system against a ballistic missile and follow-on bomber attack. The plans were to include provision for interceptor dispersal.

(U) (S) Based on NORAD's requirements, USAF ADC developed a plan for permanent interceptor dispersal.* The initial operational objective of the plan was to maintain an increased alert status and develop an all-weather capability to disperse one-third of the interceptors located in vulnerable target areas. Priority was to be given to those squadrons collocated with SAC retaliatory forces and SAGE. Upon tactical warning of an ICBM attack, one-third of the interceptors would be flushed and recovered at either home or dispersal bases. If strategic warning (12 hours) were received, provision was made for dispersal of an additional one-third of the designated interceptor force. At the dispersal bases, personnel and materiel were to be prepositioned and facilities

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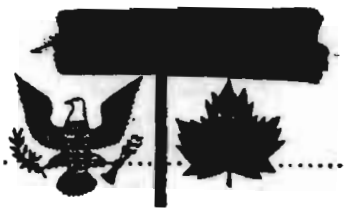
* (U) The plan was first issued as "Air Defense Command Operation Plan 20-61, Fighter Dispersal/Increased Alert," on 30 November 1961; re-issued as ADC OPLAN 20-62, on 1 May 1962; re-issued again as ADC OPLAN 20-63, on 15 January 1963.



constructed. The final objective of the plan was to have four or six aircraft (based on either 18 or 24 UE) on 15-minute alert at the dispersal bases with an eight-sortie nuclear capability.

(U) Pending Department of Defense approval of ADC's permanent dispersal plan and the necessary funding, USAF allocated funds for an interim dispersal program. This called for a 24-hour capability for recovery, turnaround, and relaunch at selected interim dispersal bases for all interceptors squadrons collocated on SAC bases. Use of Canadian dispersal bases was denied pending conclusion of necessary inter-service and governmental agreements. The interim dispersal plan got underway in CONUS during 1962.

(U) DOD approved ADC's permanent dispersal plan in the latter part of 1962. The amount of $49 million was allocated from FY 1964 funds. Thus, the program for permanent interceptor dispersal in CONUS was launched on 1 July 1963. On that date, ADC rescinded the interim dispersal plan and directed its air divisions to implement the permanent plan. Arrangements for dispersal to Canadian bases, however, were still outstanding. Eventually, dispersal would be to 30 different bases, of which nine would be Canadian.

IMPROVED INTERCEPTOR FOR ALASKA

(U) In a letter to the JCS in February 1962, the Commander-in-Chief Alaskan Command (CINCAL) had established a requirement for a replacement aircraft for the F-102A in Alaska. The JCS had concurred in the validity of the requirement, but FY 1963 funds for interceptor modernization had not been favorably considered. Following an overflight of the Alaskan NORAD Region by two Soviet aircraft on 15 March 1963, CINCAL had cause to reiterate the requirement for an improved interceptor. CINCAL stated, in a message to the JCS on 30 March, that the F-102 was not adequate to

cope with cold war overflights of Alaska by high-performance Soviet aircraft. He recommended that the 40 F-102's in Alaska be replaced with F-4C's.

(U) On 4 April CINCNORAD concurred in CINCAL's requirement for an improved interceptor, but not in replacing the F-102's with F-4C's. It was CINCNORAD's view that both the F-101 and F-106 would provide an increased capability over the F-102.

(U) The JCS referred the Alaskan requirement to the Department of the Air Force for consideration in conjunction with the Continental Air Defense Study which was scheduled for completion about 15 May. However, since this study addressed the 1966-75 time period, the JCS advised CINCAL that the more immediate aspects of the problem were under study. The JCS then turned to NORAD to furnish proposals for an earlier solution for increasing the interceptor capability in Alaska.

(U) CINCNORAD's recommendation was sent to the JCS on 24 April, following his inspection of Alaskan air defenses. He recommended that a portion of the interceptors in Alaska be replaced with F-4C aircraft diverted from Tactical Air Command,* or with F-106/F-101 aircraft rotating from ADC.

(U) The JCS concluded at a meeting on 28 May that a requirement existed for immediate improvement of interceptor capability in Alaska. At the same time they requested the Chief of Staff, USAF, in conjunction with CINCNORAD and CINCAL, to recommend what immediate action should be taken to effect the required improvement. They ruled out deploying the F-4C, however, since it would not be

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* (S) The F-4C's were scheduled to enter the Air Force inventory in FY 2/64 for allocation to TAC.

available in time to solve Alaska's immediate problem. USAF in turn appointed ADC on 6 June as its executive agent to develop, in concert with CINCNORAD and CINCAL, a near-term plan to improve the interceptor capability in Alaska.

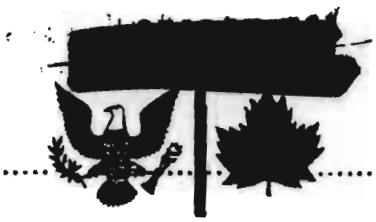
(U) Accordingly, an operational plan was evolved by the three commands to augment the existing F-102 force with F-106's on a rotational deployment basis. Initially, the plan was called a modified "Eye Ball" operations plan, but it was later rewritten and nicknamed WHITE SHOES. ADC was to deploy eight F-106's from the 25th Air Division to Elmendorf, Alaska for approximately 60 days. This would provide two conventionally-armed F-106 aircraft on five-minute alert status at both King Salmon and Galena under the operational control of the ANR Commander. NORAD directed ADC to implement the plan not later than 15 July.

(U) As it turned out, because of delays in airlift, the F-106's did not assume the alert commitment until 17 July. Also, the plan was modified at the last minute since it was not considered feasible to rotate aircraft from McChord AFB to Elmendorf AFB. Accordingly, there was to be no rotation of aircraft and instead the number deployed was increased to ten F-106's. Further, because of support facilities available, only two aircraft would be maintained at the alert bases, King Salmon and Galena.

(U) Since WHITE SHOES provided only a temporary solution, and since the cold war identification mission would continue indefinitely, plans were underway at mid-year to provide an interim solution for the time period prior to gaining the Improved Manned Interceptor sought by NORAD.

NORAD REQUIREMENT TO RESITE NIKE HERCULES UNITS

(U) NORAD had a requirement to resite a portion of its Nike Hercules force to insure a more



effective and survivable defense. The requirement was stated to the JCS in JSOP-68 on 14 January 1963, in a follow-up letter of 22 February, and in NADOP 1965-74 in June.

(S) NORAD held that 22 Hercules fire units were presently located in areas that were not best suited to meet the threat. Eighteen of these were deployed in defense of soft SAC bomber bases. The combination of warning, the SAC aircraft alert posture, and area defense was considered adequate protection against manned bomber attack. In any case, it was more probable that SAC bases would be attacked by ballistic missiles.

(S) The other four units were deployed at Thule AFB, Greenland which was within IRBM range of the Soviet Union and considered extremely vulnerable to missile attack. Thus, Thule would be a most unlikely manned bomber target.

(S) NADOP called for phasing out the four Hercules fire units in Thule in FY 1964 and making the 18 fire units transportable for deployment in critical defense areas. NORAD selected five new areas for defense by these units -- Houston, Portland, San Diego, New Orleans, and Olympic Peninsula (approach to Seattle).

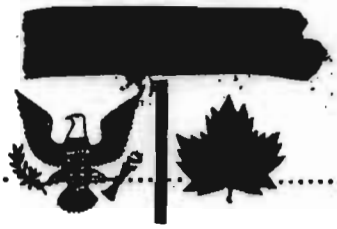
(S) NADOP also called for resiting approximately 52 fire units which presently were poorly situated by virtue of location in former short-range Ajax sites, or were not sited for maximum low-altitude capability. The cost of resiting would be offset in about five years by a gradual phase-out of 30 fire units starting FY 1966.

ANTI-INTERCONTINENTAL BALLISTIC MISSILE PROGRAM

(S) NORAD's most urgent requirement, which was to obtain an active defense against the ballistic missile threat, remained unsatisfied. The

prospect of deploying an operational anti-intercontinental ballistic system in the near future had brightened little over the years, and passive defense measures, such as warning and very limited hardening, was the only operational reality. The road to an AICBM system was strewn with technical uncertainties and prohibitive costs.

(S) The requirement was recognized at all levels, however, and research and development continued in an attempt to find a practical AICBM system. The course in R&D had been altered somewhat from trying to achieve a launch or mid-course destruction in the direction of gaining a terminal destruction capability. In FY 1964, the Nike Zeus program would be replaced by the Nike X development program, which envisaged using the multifunction phased array radar, certain Nike Zeus ground control equipment, and a high-acceleration, high-performance interceptor missile (SPRINT), as well as the Zeus missile. The latter would be retained in the Nike X program but deployed in smaller quantities than SPRINT.



7

OPERATIONS AND PROCEDURES

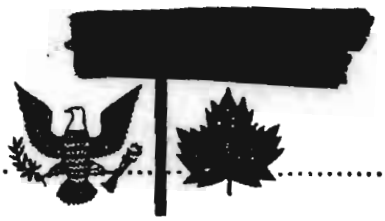
TRAINING

ECCM TRAINING

(U) (S) NORAD continued to try unsuccessfully to get an airborne electronic jamming system to provide adequate electronic warfare training for its forces. The requirement had been established in a NORAD Qualitative Requirement (NQR), dated 1 June 1961, which was sent to USAF ADC for submission to Headquarters USAF. The NQR called for the development of ECM (Electronic Counter Measures) pods with interchangeable jammers to cover all ten frequency bands used by NORAD forces. They were to be self-contained, detachable pods capable of being carried by any faker target aircraft, including UE interceptors.

(U) (S) NORAD learned that Headquarters USAF had released $7,548,000, on 14 March 1963, to buy 155 QRC-160 ECM pods. However, a comparison of the specifications for the QRC-160 pod, which was designed to meet the requirements of the Pacific Air Force, with those of the NQR, revealed that the QRC-160 pod did not meet NORAD's requirement for the following reasons: (1) lack of frequency coverage and power output, (2) lack of ECM deception techniques, and (3) lack of growth potential.

(U) (S) Accordingly, on 15 May 1963, NORAD told ADC by letter that the QRC-160 pod was not acceptable and requested it take action with Headquarters USAF to insure procurement of a pod system that would meet the NORAD ECCM (Electronic Counter Counter Measure) training requirement. Also, on the following day, NORAD sent a letter to the JCS



requesting that a requirement be levied upon the military services to equip the component and augmentation forces of NORAD with an ECM pod system as specified in the NQR dated 1 June 1963.

NORAD/FAA JOINT ECCM TRAINING

(U) On 9 October 1962, the JCS designated CONAD as the agency to provide assistance to the Federal Aviation Agency (FAA) in the development of an ECCM program for FAA air traffic controllers. CONAD remained the assisting agency until 5 July 1963 when the JCS, in response to CONAD's request, reassigned the responsibility to NORAD. CONAD had in mind the possibility of expanding the program to include Department of Transport air traffic controllers in Canada.

(U) On 22 June 1963, FAA advised its personnel of the requirement for ECCM training and instructed them to utilize available ADC field facilities pending implementation of a national ECCM training program.

OPERATIONAL EVALUATIONS

NORAD REGIONS

(U) Operational evaluations were conducted on three NORAD regions during the period: 30th NR during 14-16 March; 25th NR during 17-19 April; and Alaskan NORAD Region during 2-3 June. Operational evaluation of ANR was accomplished in conjunction with SAC Exercise ARROW POINT which was also run in the 29th Region and the Oklahoma City Sector.*

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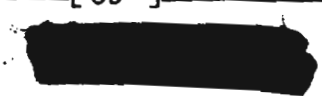
* (U) See section this chapter on ARROW POINT.



(U) The NORAD operational evaluation program was first introduced in March 1959 to improve the operational readiness and combat effectiveness of the air defense forces. In the evaluations, the best faker strike forces available were employed to simulate the NORAD estimate of the threat to the region concerned.

NORAD ALCOP

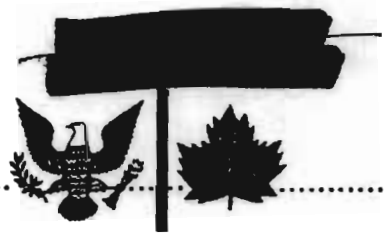
(U) Also, NORAD conducted an operational evaluation on 5 February 1963 on its Alternate Command Post (ALCOP), located at the 29th NORAD Region, Richards-Gebaur AFB. Part II of Command Post Exercise Desk Top V was used as the synthetic exercise vehicle for this evaluation.

(U) In the event that Headquarters NORAD, including its COC and Battle Staff Support Center, were destroyed, damaged, or isolated as a result of enemy attack, natural disaster, or accident, the ALCOP would be activated. The Commander of the 29th Region, as Alternate NORAD Commander, would then have the responsibility of immediately assuming operational control of all NORAD forces. In this evaluation exercise, the Alternate NORAD Commander and the ALCOP Staff conducted the air battle and maintained continuity of control of all NORAD forces effectively. However, the operational evaluation report on the NORAD ALCOP, dated 18 February 1963, stated that: "One notable weakness observed during ALCOP operation was the lack of adequate communications between higher, lateral and subordinate organizations."

EXERCISES

ARROW POINT

(U) On 2-3 June 1963, SAC conducted Exercise ARROW POINT against the 29th NORAD Region and



Oklahoma City Sector. The SAC air attack consisted of a mass penetration with mutual ECM support, supersonic high-altitude bomber strikes, high, low, and pop-up bomber strikes, and simulated quail decoys. SAC's faker force was 73 strong, consisting of B-58's, B-47's, and EB-47's.

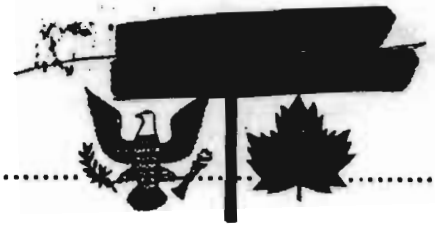
(S) The primary SAC objective was evaluation of tactics and equipment -- SAC employed specifically-designed penetration and ECM tactics. NORAD used ARROW POINT for training and as a vehicle for reaching general conclusions on its ability to counter a realistic air attack.

(S) One of the conclusions was that although the ECM activity did not saturate the entire air defense system of the Region, some radars with ECCM fixes available were unable to provide adequate detection and tracking. This was attributed primarily to the relatively unsophisticated ground radar environment in some areas, and to low experience level among ECCM operators. Contributing factors were weaknesses in training and procedures, insufficient equipment, and inadequate manning.

NORAD COMMAND POST EXERCISE FOR THE PRESIDENT OF THE UNITED STATES

(S) NORAD ran a short exercise from the NORAD COC Command Post in support of President Kennedy's visit to Colorado Springs on 5 June 1963. The exercise was observed by President Kennedy, Air Force Secretary Zuckert, and Air Force Chief of Staff, General LeMay. The primary purpose of the exercise was to demonstrate synthetically how NORAD would function in a war situation.

(S) The exercise consisted basically of two telephone conferences established from the NORAD COC. The CINC conference consisted of CINCNORAD, U.S. National Military Command Center, Canadian Chiefs of Staff Committee at Ottawa, and CINCSAC at Offutt. The Alternate U.S. National Military



Command Centers at Fort Ritchie Afloat and Airborne, SAC Alternate Airborne, and NORAD ALCOP monitored this conference. The Deputy CINC conference consisted of Deputy CINC and all of the NORAD region combat centers. All the inputs for the conferences were scripted at NORAD but played live by all participants of the conferences.

STRICOM/NORAD EXERCISES

(U) In February 1963, General Paul D. Adams, Commander in Chief of the United States Strike Command,* formally approached General John K. Gerhart, CINCNORAD, on the question of NORAD forces taking part in STRICOM's large air/ground exercises. Earlier discussions had taken place during the latter part of 1962. STRICOM had two exercises scheduled for the year, COULEE CREST in May in the Yakima, Washington, area, and SWIFT STRIKE III in August in North and South Carolina.

(U) CINCNORAD concurred and ADC units participated beneficially, in COULEE CREST. The extent of NORAD's future participation in STRICOM exercises was to be determined following evaluation of SWIFT STRIKE III in August.

CANCELLATION OF SKY SHIELD IV

(U) NORAD had conducted three consecutive annual large-scale exercises called Sky Shield. The first Sky Shield (September 1960) came about as a result of an agreement between Canadian and U.S. ministers at Camp David, Maryland, on 7 November 1959, to hold an exercise in the next

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* (U) General Paul D. Adams, CINCSTRIKE, opened Headquarters United States Strike Command at MacDill AFB, Tampa, Florida on 18 October 1961.

fiscal year. Following the first Sky Shield, the JCS approved the principle of holding an exercise annually.

(U) The primary purpose of the Sky Shield series was to exercise the entire air defense system against a mass attack on the North American continent, within an ECM environment. To permit unrestricted use of ECM, all non-participating civil and military air traffic in Canada and the U.S. was grounded during the attack. The bulk of the attacking force in Sky Shield was furnished by Strategic Air Command.

(U) NORAD had planned to run Sky Shield IV in August or September 1963. However, SAC decided not to participate in Sky Shield IV unless directed by the JCS. In a message to the JCS on 7 March 1963, SAC outlined its reasons for not desiring to take part. SAC stated that training derived for SAC crews was far less than that attained on normal training missions, and that other benefits were negligible and did not justify the substantial effort and expense involved. SAC argued that the exercise was unrealistic since it could not duplicate the Russian bomber threat because of restrictions imposed in the exercise and incompatibility of its equipment with NORAD's radar. Instead, SAC strongly favored the SAC/NORAD program for region exercises.

(U) On 27 March, the JCS told NORAD and SAC that they had reviewed the U.S. requirement for Sky Shield IV and were of the opinion that it should not be run in view of the recurring SAC/NORAD semi-large-scale exercises for FY 1964. The JCS said these latter exercises should be utilized to provide maximum training for both commands. They asked CINCNORAD for his comments prior to final JCS decision.

(U) CINCNORAD's view was that semi-large scale exercises had proved most unproductive for

NORAD and were no substitute for Sky Shield. However, despite CINCNORAD's strong appeal for continuation of the Sky Shield series, the JCS ruled in favor of cancelling the exercise for 1963. In lieu of Sky Shield IV, the JCS directed NORAD and SAC to review the semi-large-scale exercise program throughout the year and adjust concepts where necessary to achieve mutually beneficial training. Prior to 1 January 1964, the JCS were to be provided with a NORAD/SAC review and recommendations concerning a Sky Shield type exercise for FY 1965.

IDENTIFICATION AND AIR TRAFFIC CONTROL

IFF MARK XII

(U) NORAD had asked the JCS in December 1960 for a limited implementation of the IFF Mark XII System. The system was needed to increase NORAD's capability to provide safe passage to SAC EWO force and to identify other essential traffic during hostilities. The present IFF Mark X SIF had proved inadequate in NORAD full-scale exercises.

(U) The JCS directed NORAD and SAC in January 1962 to substantiate the requirement and to establish a joint SAC/NORAD position on the need for the IFF Mark XII. The following April, NORAD and SAC sent a joint reply to the JCS, recommending earliest implementation of the system.*

(U) One year later on 19 April 1963, the JCS advised the Service Chiefs, CINCNORAD, and CINCSAC that they had considered the NORAD/SAC recommendation for implementation of IFF Mark XII System. Their conclusions were that the existing IFF Mark X SIF System was unacceptable, and that the Mark

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* (U) See NORAD/CONAD Historical Summary, Jan-Jun 1962, pp. 84-86.

XII was the only positive and rapid means of recognizing friendly aircraft that had been tested. They stated that the Services should implement the Mark XII System on a yearly phase basis as a matter of priority and that the funds required should be included in the Five-Year Force Structure and Finance Program beginning in FY 64. Finally, the JCS stated they had informed the Secretary of Defense of their view regarding implementation of the IFF Mark XII System.

(U) As an encouraging note for NORAD, prior to his receiving the JCS conclusions, the Secretary of Defense in a draft memorandum to the President on Continental Air Defense stated in part:

> "One of the nagging problems of air defense is the electronic identification of friend or foe (IFF). Our present system is almost totally inadequate as the security of the identification codes cannot be maintained. We now run the risk of destroying many of our own aircraft during the course of the air battle. A new system is now available (MARK XII) which provides very secure identification. The installation of secure transponders on SAC, ADC and command and control aircraft, and the installation of the complementary interrogation at the air defense control center would greatly alleviate this problem. The initial cost of this system would be $50 to $100 million."

STANDARDIZATION OF POP-UP CRITERIA FOR ADA DEFENSE UNITS

(U) To prevent low-flying enemy aircraft or missiles, which had escaped manned interceptor or BOMARC opposition, from reaching critical areas,

NORAD had prescribed special rules for ADA defense units to act quickly against such targets. Where timely identification or tactical direction was not possible, ADA defense commanders were authorized to act autonomously and engage and destroy "Pop-Up" targets. This procedure would follow the declaration of Air Defense Emergency and implementation of SCATER/ESCAT, through which the majority of nonessential air traffic would be grounded. However, NORAD had provided only guidelines in the criteria for determining whether a target was hostile. Consequently, the Pop-Up criteria differed between NORAD regions, which conceivably could lead to confusion and the hazard of engaging friendly aircraft.

(U) (S) The 26th NORAD Region proposed standard Pop-Up criteria of 10,000 feet or less altitude (mean sea level) and a speed of 300 knots or more. This proposal was concurred in by the 29th, 30th, and 32nd NORAD Regions.

(U) (S) Before settling on this criteria, NORAD sought the opinions of the remaining regions in a letter dated 2 July 1963.

SCATER

(U) (S) NORAD had been trying for some time to publish a requirement document for SCATER (Security Control of Air Traffic and Electromagnetic Radiations). Publication was held up because the CONELRAD (Control of Electronic Radiation) plan, which directly affected SCATER, was undergoing revision by DOD and FCC. By Executive Order 10312, CONELRAD called for control of all emitters operating in the frequency spectrum between 10 kcs and 100,000 mcs for the purpose of denying navigation assistance to the enemy. However, CONELRAD was going to be changed according to the JCS's advice to NORAD in January 1962 -- to control only government emitters providing air navigation aids. Until this matter was resolved, NORAD was forced

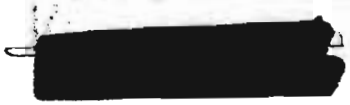
to hold up publication of its requirements for SCATER.

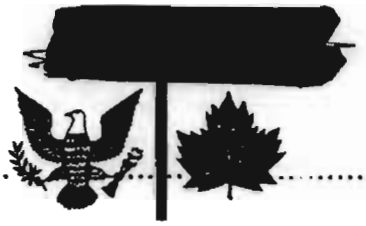
(S) Finally, on 12 January 1963, the JCS directed NORAD, in collaboration with FAA, to revise its SCATER planning and to assume that CONELRAD would be changed to control only accurate air navigation aids. Thus, NORAD's requirements in the proposed SCATER plan called for control of only accurate navigation aids (i.e., VOR, VORTAC, TACAN, LORAN, and SHORAN). In line with this, NORAD changed the title from SCATER to SCATANA (Security Control of Air Traffic and Air Navigation Aids).

(S) Currently, the proposed SCATANA plan was undergoing coordination with the FAA. After FAA coordination, its compatibility with the Canadian ESCAT (Emergency Security Control of Air Traffic) plan, published on 1 November 1960, would be reviewed. The deletion of the requirement to control the entire frequency spectrum from the U.S. SCATANA plan did away with the only likely major conflict with the Canadian plan. It had long been the Canadian position that control of all aeronautical communications would restrict civil defense communication with the public during an attack.

CANCELLATION OF NORAD/FCC MEMORANDUM OF UNDERSTANDING

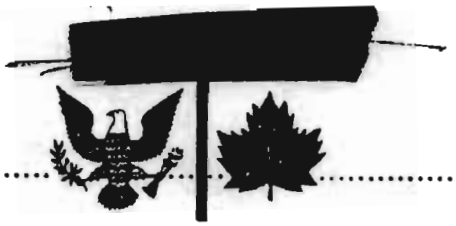
(U) Based on the requirement to control only accurate navigation aids, NORAD recommended to the JCS cancellation of the NORAD/FCC Memorandum of Understanding, contained in NORADR 55-7, dated 21 June 1960. This agreement had provided for FCC liaison personnel in NORAD regions. With elimination of the CONELRAD function to control all emitters, NORAD would have no further need for FCC personnel in the regions. Accordingly, on 11 April 1963, the JCS informed NORAD that the Secretary of





between bases where flushing was required, where flushing was not required, and dispersed fighter-interceptors. Now, states of alert for bases collocated with SAC and other target systems were higher than for non-collocated bases or dispersal bases.

(U) The revised regulation also provided for greater variance in alert status -- CINCNORAD could now vary alert requirements between sectors as well as regions when the tactical situation warranted. Wider flexibility was allowed region commanders in adjusting and waiving alert requirements for units if the situation permitted. On the other hand, region commanders could take actions earlier than required by NORAD. Finally, restrictions on training were eased since they were now tailored to the more realistic alert requirements instead of to DEFCON's.



Defense would terminate funding for the FCC liaison personnel on 30 June 1963, and that cancellation of the NORAD/FCC agreement should be concurrent with funding termination. Thus, NORAD notified FCC and the JCS that the NORAD/FCC Memorandum of Understanding was cancelled effective 30 June.

ACTIONS RESULTING FROM THE CUBAN CRISIS

NORTHERN NORAD REGION

(U) As a result of the Cuban crisis in October and November 1962, and the necessity for United States unilateral action during that period, certain areas of conflict in operational procedures came to light. This was particularly true in Northern NORAD Region, whose assigned forces were both Canadian and U.S. Hence, there were two channels of executive authority -- NORAD and CONAD -- exercising control over operations in that region.

(U) The first evidence of conflict centered around the discrepancies in NORAD and CONAD readiness conditions. CONAD declared DEFCON 3 48 hours before NORAD declared the same state.* Further conflict resulted when, on the declaration of CONAD DEFCON 3, ten interceptors were moved out of NNR's Bangor Sector and dispersed to bases in the 26th NORAD Region. These forces were suddenly withdrawn

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* (U) DEFCON was..."a general indication of the type of action that may be taken or directed to bring the air defense system to a desired readiness posture to meet any contingency." (NORADR 55-3, dated 22 Mar 1963). There were five numbered DEFCONS -- DEFCON One being a maximum readiness posture and DEFCON Five a normal, sustained posture. "Air Defense Emergency" was the highest state of preparedness.

from NNR without consultation with, or proper notification to, the commander of that region. These and other areas of concern were covered in a letter from the NNR Commander to the NORAD Deputy Commander-in-Chief, dated 15 November 1962.

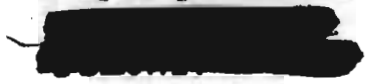
(U) A reply was sent to the NNR Commander on 8 January 1963, stating that NORAD was making an analysis study of actions taken during the Cuban crisis. It said measures would be taken to insure that the NNR Commander would be kept adequately informed of CONAD actions affecting his forces.

(U) On 15 March, NORAD sent guidance to NNR, 26th CONAD Region, NORAD Bangor Sector, and CONAD Bangor Sector clarifying NORAD/CONAD actions upon implementation of U.S. unilateral action. For one, the 26th CONAD Region would assume control of the Bangor CONAD Sector. Also, forces operating under CONAD authorities would still be responsive to NORAD DEFCONS. NORAD's letter went on to amplify portions of existing NORAD/CONAD operations orders and regulations pertaining to U.S. unilateral actions.

REVISIONS IN ALERT PROCEDURES

(U) From experience gained during the Cuban crisis, NORAD revised Regulation 55-3, "(U) Defense Readiness Conditions, States of Alert, Alert Requirements and Air Defense Warnings," on 22 March 1963. One revision aimed to eliminate the confusion experienced when NORAD and CONAD were under different readiness conditions. The regulation was changed to read: "A NORAD declared DEFCON will take precedence over and cancel any CONAD DEFCON except that actions need not be reordered."

(U) Among other changes in the regulation, alert requirements were revised to provide a more realistic alert and survival defense posture according to the threat. Distinctions were made



APPENDICES

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APPENDIX I

SUMMARY OF THE FORCES

(As of 1 July 1963)

(U) MISSILE FORCE

Regular

2 BOMARC A Squadrons
5 BOMARC B Squadrons
3 BOMARC A & B Squadrons
Missiles Assigned - 207 A, 250 B

127 Hercules Fire Units
Missiles Assigned - 1836

8 Hawk Fire Units
Missiles Assigned - 288

Army National Guard

16 Hercules Fire Units
Missiles Assigned - 240
34 Ajax Fire Units
Missiles Assigned - 680

(U) INTERCEPTOR FORCE

Regular

45 Fighter Interceptor Squadrons -
872 aircraft authorized, 929
assigned

Squadrons:	16	9	2	13	5
	F-101	F-102	F-104	F-106	CF-101

[redacted]

[redacted]

Augmentation

NORAD Category I Augmentation Force - 25 squadrons from ADC/ANG - 625 aircraft authorized, 515 assigned

NORAD Category II Augmentation Force (Regular) -

USN/USMC - F-4B, F-3B, F-8A, F-8D, F-6A, F-11A, and F-9J aircraft as available
TAC - 28 aircraft as available, D-Day through D+30
TAC - 42 aircraft as available, D-Day through D+5
USAF ADC - 157 aircraft
RCAF ADC - CF-100 and CF-101 aircraft as available

(U) (8) SURVEILLANCE AND CONTROL

Surveillance

178 Prime Radar Sites
96 Gap Filler Radars
Distant Early Warning Line:
Land Based Segment - 6 main, 28 intermediate, and 23 auxiliary stations
Aleutian Segment - 1 main and 5 auxiliary stations
Greenland Segment - 4 auxiliary stations
Mid-Canada Line: 8 Section Control and 90 Doppler Detection Stations
Picket Ships - 11 stations authorized, 10 manned
AEW&C Stations - 11 stations authorized; Key West Station manned full time, other stations manned 30% of the time on random, rotating basis

[redacted]

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Pacific Barrier (under operational control of CINCPAC) - 5 aircraft stations
G-I-UK Barrier (under operational control of CINCLANT) - 2 aircraft stations and 2 Iceland-based radars
2 Ballistic Missile Early Warning Stations
1 Space Detection and Tracking System
1 Bomb Alarm System

Control

1 Combat Operations Center
2 NORAD ALCOP's
8 NORAD Region Combat Centers - 4 SAGE, 2 remoted from Sector DC, and 2 manual
20 Sector Direction Centers (17 SAGE and 3 manual)
2 NORAD Sectors without direction centers
27 NORAD/CONAD Control Centers
4 NORAD Control Centers
2 CONAD Control Centers

(U) MANPOWER

Authorized

NORAD and Components	- 175,677
National Guard and Reserve	- 42,789
TOTAL	- 218,466
NORAD Headquarters	710

[redacted]

APPENDIX II

SUMMARY OF ORGANIZATIONAL CHANGES

(1 January 1963 through 1 July 1963)

(U) REGIONS

Northern NORAD Region Headquarters moved from RCAF Station St. Hubert, Quebec, to RCAF Station North Bay, Ontario, 13 May.

32d NORAD/CONAD Region Headquarters moved from Oklahoma City AFS, Oklahoma, to Gunter AFB, Alabama, 1 July.

(U) SECTORS

Four NORAD/CONAD Sectors were discontinued:

San Francisco NORAD/CONAD Sector, Beale AFB, California, 15 May.
Minot NORAD/CONAD Sector, Minot AFB, North Dakota, 15 May.
Spokane NORAD/CONAD Sector, Larson AFB, Washington, 1 June.
Montgomery NORAD/CONAD Sector, Gunter AFB, Alabama, 1 July.

Two sector headquarters were designated and organized:

Ottawa NORAD Sector Headquarters, RCAF Station North Bay, Ontario, 13 May /Sector also redesignated Ottawa NORAD Sector from Ottawa NORAD Sector (Manual)/

Oklahoma City NORAD/CONAD Sector Headquarters, Oklahoma City AFS, Oklahoma, 1 July (command assignment changed from 32d NORAD/CONAD Region to 29th NORAD/CONAD Region).

(U) CONTROL CENTERS

Five NORAD/CONAD control centers and one CONAD control center were established:

Finland NCC/CCC, Finland AFS, Minn, 8 April
Port Austin NCC/CCC, Port Austin AFS, Mich, 8 April
Rockville NCC/CCC, Rockville AFS, Ind, 23 April
Calumet NCC/CCC, Calumet AFS, Mich, 6 May
Sweetwater NCC/CCC, Sweetwater AFS, Tex, 22 May
Bangor CCC, Charleston AFS, Me, 1 March

Eight NORAD/CONAD control centers were discontinued:

Jacksonville NCC/CCC, Jacksonville NAS, Fla, 5 April
Detroit NCC/CCC, Selfridge AFB, Mich, 8 April
Snow Mountain NCC/CCC, Snow Mountain AFS, Ky, 8 April
St Louis NCC/CCC, Belleville AFS, Ill, 8 April
Chicago NCC/CCC, Arlington Hts, Ill, 23 April
Roswell NCC/CCC, Walker AFB, N.M., 22 May
Alexandria NCC/CCC, England AFB, La, 20 June
San Antonio NCC/CCC, Lackland AFB, Tex, 20 June

(U) Three NORAD/CONAD control centers were reassigned:

San Francisco NCC/CCC, Point Arena AFS, Calif, from 28th NR to 25th NR, 15 May
Dallas NCC/CCC, Duncanville AFS, Tex, from 32d NR to 29th NR, 1 July
Sweetwater NCC/CCC, Sweetwater AFS, Tex, from 32d NR to 29th NR, 1 July

GLOSSARY OF ABBREVIATIONS

AAWS	Automatic Attack Warning System
ADC	Air Defense Command
ADS	Air Defense Sector
AFSC	Air Force Systems Command
AICBM	Anti-Intercontinental Ballistic Missile
ALCOP	Alternate Command Post
ANG	Air National Guard
ANGB	Air National Guard Base
ARADCOM	Army Air Defense Command
ARPA	Advanced Research Projects Agency
AUTOVON	Automatic Voice Network
BMEWS	Ballistic Missile Early Warning System
BUIC	Back-Up Interceptor Control
BW/CW	Biological Warfare/Chemical Warfare
CADIN	Continental Air Defense Integration North
CC	Control Center
COC	Combat Operations Center
CONAD	Continental Air Defense Command
CONARC	Continental Army Command
CONELRAD	Control of Electromagnetic Radiations
CONUS	Continental United States
COSC	Chiefs of Staff Committee (Canada)
DC	Direction Center
DCA	Defense Communications Agency
DCS	Defense Communications System
DDR&E	Director of Defense Research and Engineering
DEFCON	Defense Readiness Condition
DEW	Distant Early Warning Line
DRB	Defence Research Board (Canada)
ECCM	Electronic Counter Countermeasures
ECM	Electronic Countermeasures

ERBM	Extended Range Ballistic Missile
FAA	Federal Aviation Agency
FCC	Federal Communications Commission
FIS	Fighter Interceptor Squadron
FOC	Final Operating Capability
GFR	Gap Filler Radar
IMI	Improved Manned Interceptor
IOC	Initial Operating Capability
JSOP	Joint Strategic Objectives Plan
JTD	Joint Table of Distribution
LRR	Long Range Radar
NASA	National Aeronautics and Space Administration
NCC	NORAD Control Center
NGCI	NORAD Ground Control Intercept Station
NNR	Northern NORAD Region
NORAD	North American Air Defense Command
NQR	NORAD Qualitative Requirement
NUDET	Nuclear Detonation
OSD	Office of the Secretary of Defense
PARL	Prince Albert Radar Laboratory
PCP	Program Change Proposal
PSPP	Proposed System Package Program
SACEUR	Supreme Allied Commander Europe
SAGE	Semi-Automatic Ground Environment
SCAN	Switched Circuit Automatic Network
SCATANA	Security Control of Air Traffic and Air Navigation Aids
SCATER	Security Control of Air Traffic and Electromagnetic Radiations
SHAPE	Supreme Headquarters Allied Powers in Europe

SLBM	Sea-Launched Ballistic Missile
SLFCS	Survivable Low Frequency Communications System
SPADATS	Space Detection and Tracking System
SPASUR	Space Surveillance System (Navy)
TRACE	Transportable Automated Control Environment
VAS	Voice Alerting System

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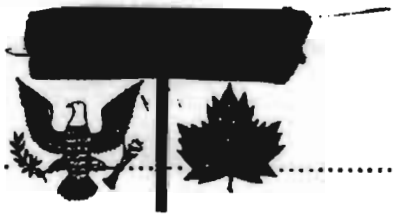

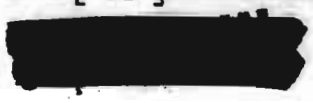

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