

K410.041-54

1946-1948

RETURN TO:

Mr. J. Edgar Hoover
Director
Federal Bureau of Investigation
Washington, D. C.

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AFOAC-E/P
Col Wilson/hjw
73227
(Wrtn 18Nov47)

18 November 1947

MEMORANDUM FOR THE CHIEF OF STAFF, U.S. AIR FORCE:

SUBJECT: Aircraft Control and Warning Plan for Alaska and the Continental U.S.

1. Herein presented, for your approval, is a summarized plan of action to provide the Aircraft Control and Warning portion of an Air Defense System for Alaska and the continental U.S. A systematic allocation of equipment, funds, and personnel is required to complete, within five years, a system capable of operation, modernization, and expansion. This plan will provide 24-hour operation of Alaskan stations; 24-hour operation of peripheral early warning stations of the U.S.; and part-time operation of inner stations of the U.S. Implementation of this plan is scheduled in three time phases, requiring:

a. A total outlay of \$388,000,000 for equipment, construction, communications, and services.

b. 25,138 Regular Air Force troops.

c. 13,788 National Guard troops.

Total - 38,926

2. Phase I -- Action from present date to 30 June 1948

a. Requirements:

(1) 74 radar equipments.

(2) 3278 Regular Air Force troops (552 for Alaska; 2726 for U.S.).

(3) \$19,000,000 (\$11,250,000 for construction, communications, and services; \$7,750,000 for new radar).

b. This will provide:

(1) 53 radar stations (13 in Alaska; 40 for U.S.).

(2) 3 Air Defense Control Centers (1 in Alaska; 2 in U.S.).

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Note: Present troop basis is adequate. The 74 radar equipments are now on hand.

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3. Phase II -- Action for FY 1949.

a. Requirements:

- (1) 125 additional radar equipments.
Total - 199
- (2) 9674 Regular Air Force troops (4160 for Alaska; 5514 for U.S.).
- (3) \$69,125,000 (\$53,750,000 for construction, communications, and services; \$15,375,000 for new radar equipment).
- (4) \$26,921,161 for cost of Air Force troops over and above presently authorized troop basis.

b. This will provide:

- (1) 63 additional radar stations (19 in Alaska; 44 in U.S.).
Total - 116 (32 in Alaska; 84 in U.S.).
- (2) 7 additional Air Defense Control Centers (1 in Alaska; 6 in U.S.).
Total - 10 (2 in Alaska; 8 in U.S.).

Note: Authorized Aircraft Control and Warning troop basis for Alaska must be increased by 4160, and that for U.S. by 5514. Radar equipment required is now being procured.

4. Phase III -- Action for FY 1950-1951-1952-1953.

a. Requirements:

- (1) 580 additional radar equipments.
Total - 779
- (2) Regular Air Force troops phased through 1950, 1951, 1952, and 1953.
12,186 (688 for Alaska and 11,498 for U.S.).
- (3) 13,788 National Guard troops.

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- (4) \$299,875,000 for equipment, construction, communications, and services.
 - (a) FY 1950 - \$158,125,000.
\$46,125,000 for radar equipment.
\$118,000,000 for construction, communications, and services.
 - (b) FY 1951 - \$82,250,000.
\$30,750,000 for radar equipment.
\$51,500,000 for construction, communications, and services.
- (5) Cost of Air Force troops over and above presently authorized troop basis.
 - (a) FY 1950 - \$49,561,033.
 - (b) FY 1951 - \$65,828,068.
 - (c) FY 1952 - \$67,405,364.
 - (d) FY 1953 and each Fiscal Year thereafter - \$67,921,730.

b. This will provide:

- (1) 295 additional radar stations (5 in Alaska; 290 in U.S.).
- (2) 8 additional Air Defense Control Centers (2 in Alaska; 6 in U.S.).

c. Completed system will have:

- (1) 411 radar stations (37 in Alaska; 374 in U.S.).
- (2) 18 Air Defense Control Centers (4 in Alaska; 14 in U.S.).

Note: Radar equipment for this phase must be procured. Authorized Aircraft Control and Warning troop basis for Alaska must be increased by 688, and that for U.S. by 11,498. Assuming full strength (13,788) utilization of National Guard Aircraft Control and Warning troops, there is a requirement for an increase in Regular Air Force Aircraft Control and Warning troop basis by 1953 as follows:

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- (4) \$299,875,000 for equipment, construction, communications, and services.
 - (a) FY 1950 - \$158,125,000.
\$46,125,000 for radar equipment.
\$118,000,000 for construction, communications, and services.
 - (b) FY 1951 - \$82,250,000.
\$30,750,000 for radar equipment.
\$51,500,000 for construction, communications, and services.
- (5) Cost of Air Force troops over and above presently authorized troop basis.
 - (a) FY 1950 - \$49,561,033.
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a. Alaska - - - - -4,848
 b. Air Defense Command- - - 17,012
 Total- - - - - 21,860

(This is an increase over present interim troop basis allocation.)

\$150,000,000 will be required annually starting 1 January 1953, to operate and maintain the complete system. This includes \$83,000,000 for equipment replacement (20% per year), maintenance and services and \$67,000,000 for cost of troops over and above those presently authorized.

5. Upon completion of all three phases, the Air Defense Command and the Alaskan Air Command will have been provided with the means to establish the best Aircraft Control and Warning system obtainable. The radar coverage which can be afforded by this program is shown on the attached chart.

6. It is recommended that:

a. The above time-phased plan of action be approved.

b. The Aircraft Control and Warning portion of the Air Force troop basis be increased by 21,860 to provide the minimum troops necessary to operate the Alaskan and continental U.S. Aircraft Control and Warning system, as follows:

FY 1948 -	None
FY 1949 -	9674
FY 1950 -	8717
FY 1951 -	2569
FY 1952 -	700
FY 1953 -	200
	<u>21,860</u>

c. This troop basis be obtained as an addition to the present Air Force troop basis.

Note: Initial indications are that this additional troop basis is not available within the present Interim Air Force troop basis without seriously crippling other activities, including Aircraft Control and Warning in the Tactical Air Command and overseas commands other than Alaska (total 9688).

1 Incl
Radar Coverage Chart

F.L. ANKENBRANDT
Brigadier General, U.S. Army
Air Communications Officer

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204

19 November 1947

PRESENTATION OF AIRCRAFT CONTROL AND WARNING SYSTEM FOR ALASKA
AND THE U.S.

Opening Remarks by Brigadier General F. L. Ankenbrandt

1. This entire presentation takes about twenty minutes. We have had several prior presentations of this plan and I believe, based on these trials, you can probably get the best over-all picture if, with your permission, you will first hear it all the way through, leaving your questions until the end. We have found that most of the questions which may arise in your minds in the early parts are answered fully in subsequent parts.

2. This briefing is, in effect, the presentation for approval of an Air Staff study and plan for a complete Aircraft Control and Warning System for Alaska and the U.S. This plan was finalized as a result of a directive from the Vice Chief of Staff, Hq U.S. Air Force, approximately 21 October. It is based on appropriate portions of the over-all Joint Canadian-U.S. Basic Security Plan (now a planning document of the Joint Chiefs of Staff). It also takes into full consideration the plans submitted by General Stratemeyer and the comments on recent interim presentations to Mr. Symington, General Spaatz and the Air Policy Board dealing on this over-all subject.

3. This plan covers a five year program, starting from whenever the funds requested are initially made available. These funds are not contained in Fiscal Year 47, 48 or 49 budgets, although they were included at least in part in preliminary estimates as far back as Fiscal Year 47. These funds were eliminated in the course of preparing the President's budget recommendation to Congress mainly because of the over-all limitation imposed on this budget and the higher priority which has consistently been given to meeting the striking force requirement. Furthermore, the advisability of such a major outlay of funds for air defense purposes could not be agreed upon in the Air Staff, the time factor as to when such a system should be operating in place being a major element involved in this lack of agreement. Other factors involved were that theories on air defense have been in a state of flux, the ultimate requirements for air warning and control have changed somewhat with the advent of mass destruction weapons, and post World War II radar equipment of types materially superior to types used in World War II will not evolve from research and development into a stage where initial production can be started prior to approximately 1953.

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Presentation of Aircraft Control and Warning System for Alaska and the U.S. - Opening Remarks by Brig. Gen. F. L. Ankenbrandt, 19 Nov 47 (cont'd).

4. In presenting the requirements for the aircraft control and warning network, I wish to emphasize that although this network is the heart of any integrated Air Defense System, it does not in itself provide air defense. The other elements, consisting of fighter aircraft, guided missiles, antiaircraft artillery and their facilities, have been omitted from this presentation. Requirements for these combat elements can be determined realistically only after the size of the warning and control network, which is the foundation and framework, has been fixed. This presentation also omits the Canadian portion of the joint plan, which has been under discussion for over one year and on which no implementing action has as yet been decided by the Canadians. Their plan calls for an estimated \$100,000,000, etc. Additional details of the Canadian plan will be shown later on in this presentation.

5. It should also be emphasized that while the plan will provide the best system obtainable today, it will not necessarily provide a fully "air tight" warning screen and control system because of certain technical limitations of the types of radar which must be employed. It will provide a moderately efficient system against conventional types of long range attacks which an enemy may launch within the next few years and will also provide a most valuable asset for the development of tactics and technique, and the actual training of the personnel involved. This system can be modernized when new types of radars become available at a cost not greatly in excess of the cost of the new radars themselves, since the major portion of the funds included in this plan (84%) are for construction, communications and troops, which expenditure will be required regardless of the types of radars used.

6. This plan is capable of full implementation or of partial implementation in varying degrees, depending on the decision as to its importance in relation to other programs and the amount of funds and personnel that can be made available for the purpose.

7. Colonel Wilson of my office will now present the details of the over-all five-year plan, which includes a nonrecurring outlay of \$388,000,000 for the system itself and an ultimate recurring cost of \$150,000,000 starting in 1953. This recurring cost includes \$67,000,000 for necessary troops not now authorized, and \$83,000,000 for operating expenses, including complete modernization every five to seven years. It should be noted that our plan does not include cost of implementing any portion of the companion Canadian plan, which may or may not be necessary depending on the outcome of negotiations between the two governments.

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USAF

20 Oct 1948

2061

SUBJECT: Interim Program for Employment of Aircraft Control and Warning Radar

TO: Commanding General
Air Defense Command
Mitchel Air Force Base, N. Y.

FILE NUMBER 2061
LOGGED

1. It is desired that a program be initiated immediately to deploy in operational locations all available permanent type radars. The scope and priority among installations of the desired deployment are shown in Tab A hereto. Locations of radars are shown in Tab A only to indicate the coverage desired, and are not specific sites. The Interim Program, when completed, should provide an aircraft control and warning system permitting effective employment of assigned fighters and antiaircraft artillery, and should cover vital areas in the continental United States.

2. The timing for deployment of the radars on hand and under procurement was based on certain data furnished by your headquarters. It was assumed that site surveys could be conducted by personnel in your command at the rate of one site survey a week by each site survey team, with two site survey teams working simultaneously and starting site survey work immediately. Tab B shows assumed typical time phasing for installations after completion of the site surveys. Tab C shows the time considered necessary to install radars on hand or under procurement.

3. In order to initiate installation of the aircraft control and warning system, \$561,000 are being earmarked for the following specific purposes:

Basic Engineering	175,000
Lenses, with option to buy	234,000
Emergency construction on existing • government-owned sites	<u>152,000</u>
	561,000

4. In addition to the above, funds will be made available to you for site surveys. It is requested that you submit a formal request to this headquarters for the amounts necessary to survey and determine

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Ltr CG ADC sub j: Interim Program for Employment of Aircraft Control and Warning Radar

Final locations for sixty-one (61) radar stations and ten (10) control centers. This estimate should be submitted by appropriation and project and should be accompanied by detailed justification. Justification for TDY travel funds will include a breakdown of amounts required for:

- a. Commercial travel.
- b. Per diem while actually in a travel status.
- c. Per diem while on other than travel status.

Amounts already obligated by you in implementing this plan will be footnoted in your request.

5. It is emphasized that both emergency construction funds and travel funds are critically short. Limited funds will be allocated only because of the urgency for initiation of the Interim Program. It is desired every effort be made to economize in the implementation of this plan.

6. Responsibilities in implementing this plan are as follows:

- a. Responsibility for the site surveys is given the Air Defense Command. Such surveys will be initiated immediately.
- b. Basic engineering is the responsibility of the Corps of Engineers, Department of the Army. In this connection, it is understood that the Air Materiel Command has spent considerable time developing plans for technical buildings and should be consulted by your headquarters. Review and approval of plot plans and general plans of structures is the responsibility of this headquarters.
- c. Requests for lease of land should be made following site surveys by the Air Defense Command and processed through this headquarters in accordance with AF Regulation 85-3 for continuance of action.
- d. Work in connection with emergency construction on thirteen (13) existing government-owned sites in the First Air Force area should be processed to this headquarters in the form of projects as required by AF Regulations 85-4 and 85-5 and amendments thereto.

7. Due to economic and other considerations, it has been decided in peacetime, to organize and operate the radar stations and air control

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Ltr CG ADC, Subj: Interim Program for Employment of Aircraft Control and Warning Radar

centers provided by the Interim program on a reduced strength troop basis, the details of which are given in Tab E. The troop strength is considered sufficient in peacetime to operate the three priority areas (N. C., N. W., and New Mexico areas of the United States) continuously and the remainder on a part time schedule. On M-Day, or in time of emergency, all installations are to be operated continuously until reinforced by Air National Guard troops, estimated to be available in Federal Service within three days. It is desired that Air Defense Command submit the time phasing and detailed team composition within the limits specified by Tab E, by USA squadrons and groups to this headquarters for approval; with recommended revision, if necessary, of present authorized and planned troop basis. Action is being taken by this headquarters to reorganize the Air National Guard according to the team composition given by Tab E.

8. It is further desired that Air Defense Command plan the division of the United States for the purpose of air defense into twenty Area Air Commands for war and eight for peace, similar to those outlined on the tentative map, Tab G, and submit it to this headquarters for approval. The Air Control Center for each Area Air Command will be constructed and organized at the location listed either by the USAF or Air National Guard as shown in detail by Tab E. Ten Air Control Center installations will be constructed by the USAF. Of these ten, two are to be constructed for ADC war use at locations (Bismarck, N. Dak., and Los Alamos, N. M.) where it is not feasible to activate Air National Guard Air Control Squadrons. After M-Day the Air National Guard will provide the Air Control Squadrons for these two Area Air Commands, as well as ten others, all of which are shown by Tab G.

9. It is desired that the Air Defense Command initiate immediately:

a. Submission of a detailed statement of requirements for plans for typical installations in the Interim Program, to permit the Corps of Engineers to prepare the necessary basic construction plans.

b. Formal projects covering emergency construction required on existing government-owned sites to permit immediate deployment of units and equipment.

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and Warning Radar

10. It is desired that significant changes disclosed by detailed
planning, in sums of money involved, in the proposed timing of the
Interim Program, or in its scope, be reported to this headquarters.

BY COMMAND OF THE CHIEF OF STAFF:

/s/ LAURENCE W. HORTON
Lieutenant General, USAF
Deputy Chief of Staff,
Operations

3 Incls

1. Tab A
2. Tab B
3. Tab C
4. Tab D
5. Tab E
6. Tab F
7. Tab G
8. Tab H

SUPPORTING DOCUMENT NO. 3

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JOINT MESSAGEFORM				SECURITY CLASSIFICATION	
SPACE BELOW RESERVED FOR COMMUNICATION CENTER					
1 MAR 62 19 25z					
PRECEDENCE	TYPE MSG (Check)	ACCOUNTING SYMBOL	ORIG OR REFERS TO	CLASSIFICATION OF REFERENCE	
ACTION	PRIORITY	BOOK	MULTI	SINGLE	
INFO	ROUTINE		X		AF
FROM:				ESSGD-26-2-128-ECONE	
TO:				SPECIAL INSTRUCTIONS	
ADC ENT AFB COLO				DISTRIBUTION: ADOAC-AF	
ESD 1G HANSCOM FLD MASS					
AFSC ANDREWS AFB MD					
RADC GRIFFISS AFB NY					
WESTERN GEEIA RGN MCCLELLAN AFB CALIF				<div style="border: 1px solid black; padding: 5px; transform: rotate(-90deg); transform-origin: center;"> DOWNGRADED AT 3 YEAR INTERVALS; DECLASSIFIED AFTER 12 YEARS. EOD DIR 5,0010 Group 4 </div>	
GEEIA GRIFFISS AFB NY					
INFO: 28AIRDIV HAMILTON AFB CALIF					
ADC COMD CTL DEF SYS OFC LG HANSCOM FLD MASS					
CONFIDENTIAL ADOAC-ER <u>596</u>					
Action for ESSGD at ESD; RALCE at RADC; ROXIPS at GEEIA; SCSEW at AFSC. Info to OAC at 28 Air Div; CCDSO.					
(U) AN/FPS-24 Testing at Almaden. Ref ESD msg ESSGD-26-2-128-E, 27 Feb 62, NOTAL. This msg in three parts. PART 1.					
Referenced ESD msg advises that technical agencies cannot state full extent of RFI problem nor firm fixes required.					
While the combination of fixes proposed may alleviate present RFI problem, resulting impact on operational					
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PHONE 6233					
SECURITY CLASSIFICATION					
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		SIGNATURE			
		MARSHALL C. BROWN, JR			
		Lt Colonel, USAF			
		Chief, Elect Sys Div			

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FORM

HQ ADC

capability must be defined. It is expected that the tests and corrective action being accomplished by ESD should provide this information. Any limitations in coverage or on frequency or polarization can only be evaluated after all possible fixes have been investigated, tested and installed, and the extent of the degradation established. PART II. Following comments are offered in regard to contemplated fixes which may be required: /A/ Blanking of 19 degree area covering town of San Jose on permanent peace-time basis involves loss of coverage in high density air traffic area. /B/ Any increase of antenna tilt from optimum and particularly at maximum upward tilt seriously degrades low altitude coverage. NORAD requires 500 feet above flyable terrain coverage in this area. /C/ Restriction of polarization and frequency to be used also entails some restriction in operational capability, although peacetime restrictions may not be intolerable. /D/ Reduction in power would appear to be of only marginal value to solution of RFI. Taken altogether, the possible fixes and operational restrictions which are proposed can result in a serious reduction in the air defense capability to be obtained from this radar. Until such time as the investigative and corrective

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JOINT MESSAGEFORM - CONTINUATION SHEET

SECURITY CLASSIFICATION

FROM

HQ ADC

program instituted by AFSC results in determination of specific corrective fixes and until the full extent of the limitations in operational air defense which may be imposed by these fixes has been established, ADC is not able to ^{specifically} ~~specifically~~ agree to the proposed configuration. PART III. Concur in general that AFSC (RADC) have operational control of the radar so long as the following ADC interests are recognized:

/A/ Necessity for testing any frequencies outside the authorized 216-225 mcs band only after coordination with appropriate military and civil users and at hours of minimum traffic. /B/ Necessity for maximum coordination with local FCC, broadcast authorities and other local agencies regarding initial testing inside the assigned frequency band until reasonable confidence level is achieved. These precautions are considered essential in recognition of congested nature of the electronic environment at Almaden and the continuing requirement that ADC function in this environment. A representative of the 28 Air Div will be appointed to represent ADC in that effort. Recommend that this representative be employed as a central point of coordination between the RFI team and interested local agencies. 5004.

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PRECEDENCE		TYPE MSG (Check)		ACCOUNTING SYMBOL	ORIG OR REFERS TO	CLASSIFICATION OF REFERENCE
ACTION	ROUTINE	BOOK	MULTI	SINGLE		
INFO	ROUTINE		X		AF	X
FROM:					SPECIAL INSTRUCTIONS DISTRIBUTION: ADMME-CA ADMLP ADLSP ADOOP-F ADOIC ADMSS-CA ADOAC-A	
ADC ENT AFB COLO						
TO:					<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> 1304 INT SECURITY DIV 15 MAY 1962 </div>	
28AIRDIV HAMILTON AFB CALIF AFSC ANDREWS AFB MD ESD LG HANSCOM FLD MASS RADC GRIFFISS AFB NY INFO: GEEIA GRIFFISS AFB NY SFADS BEALE AFB CALIF 682 RADAR SQ ALMADEN AFS CALIF SECRET ADOAC-ER <u>1304</u> Action for OAC at 28 Air Div; SCSEW at AFSC; ESSGD at ESD; RALCE at RADC. Info for ROZIPS at GEEIA; OAC at SFADS; Commander at 682 Radar Sq. (U) FPS-24 Radar at Almaden. This msg in six parts. PART I for AFSC and 28 Air Div. RADC presented the results of their investigation of the operational limitations to the Almaden FPS-24 radar to this Hq on 8 - 9 May 62. AFSC, ESD (416L SPO), 28 Air Div, and SFADS representatives were						
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					10	
					MONTH	YEAR
					MAY	1962
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FROM:

ADC ENT AFB COLO

present. The information presented indicates sufficient testing effort has been expended and that enough information has been obtained to allow ADC to integrate this radar into the operational network. This acceptance is qualified by the knowledge that the operational capabilities will be reduced by sector blanking, frequency limitations, undesirable blind speed limitations in certain modes of operation, and an unknown public relations problem due to present and possible future RFI that may develop. PART II for 28 Air Div. The FPS-20 may be retained for an indefinite period to fully establish the extent of the above limitations. Your Hq is requested to recommend a new phase-out date. PART III. The 28 Air Div and the 682 Radar Sq will initiate immediate action with RADC (RALCE) to assume operational and maintenance responsibility by accomplishment of AFTO Form 88. SAGE integration testing will begin as soon as can be arranged by ESD (416L SPO). PART IV. Until further notice, 28 Air Div is authorized to operate this radar in peacetime on Channel A and B on indices 10 through 15, inclusive, with blanked 50 degree sector centered on population area. However, operational requirements will receive priority consideration over these limitations. 28 Air Div should ensure that this Hq is kept fully aware as to results of these operating limitations. In addition, any

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AIR: ER: AFB COLO

Air Div efforts resulting in reduction of these limitations should be forwarded to this Hq. PART V for AFSC. This Hq is reluctantly taking action to accept the Alameda FPS-24 with the reservation and understanding that continuing effort will be made by your command to improve this radar. The operational limitations imposed by blanking of an approximate 50 degree area, restricted operating frequencies, and reduction in maximum range imposed by use of 500 microsecond stagger can only be temporarily tolerated. Your firm assurance of continued investigative and corrective action to remove these restrictions is required. PART VI for ESD. The SAGE integration testing should be initiated as soon as possible. Integration testing with and without fixes and to permit utilization of both 125 and 500 microsecond delay lines in the PRF stagger at ADC option, is required. SCP-3.

FORM 10

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SUPPORTING DOCUMENT NO. 5

JOINT MESSAGEFORM			SECURITY CLASSIFICATION CONFIDENTIAL		
U.S. AIR FORCE COMMUNICATION CENTER					
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FROM:	ADC ENT AFB COLO				CLASSIFICATION OF REFERENCE CONF
TO:	25AIRDIV MCCHORD AFB WASH				SPECIAL INSTRUCTIONS DOWNLOADED FROM DISK DATE: 11/11/82 GROUP 4
	26AIRDIV HANCOCK FLD NY				
	28AIRDIV HAMILTON AFB CALIF				
	29AIRDIV RICHARDS GEBUR AFB MO				
	30AIRDIV TRUAX FLD WISC				
	32AIRDIV OKLAHOMA CITY AFS OKLA				
INFO:	64AIRDIV STEWART AFB NY				
	73AIRDIV TYNDALL AFB FLA				
	GEEIA GRIFFISS AFB NY				
	RADC GRIFFISS AFB NY				
	ESD L G HANSCOM FLD MASS				
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	AFSC ANDREWS AFB MD				
CONFIDENTIAL ADOAC-AF 1441					DATE
For OAC at all Air Divs; Info ROZMW at GEEIA; RALCE at					TIME
					MONTH
					YEAR
					MAY 1962
SYMBOL ADOAC-AF			SIGNATURE		
TYPED NAME AND TITLE (Signature, if required) MAJ BRUCE HIGGINS/MS			TYPED (or stamped) NAME AND TITLE GEORGE H. FOGARTY		
PHONE 8761			Lt Colonel, USAF		
SECURITY CLASSIFICATION CONFIDENTIAL			Ch Program Management Div.		
MR. 1			4		

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ADC ENT AFE COLO

RADC; ESSG at ESD; AD4CS at ADC CCDSO; SCSEW at AFSC.
 (U) Reporting of Interference to Civil Frequency Users.
 Reference conf msg ADOAC-AF 2734, 7 Dec 61 (not to 64 and 73 Air Divs; subsequently downgraded to unclassified by ADOAC-AF 57410, 11 Dec 61). This msg in 4 parts.
 Part I: The above reference directed attention of all addressees to the necessity for prompt reporting of all interference to and resulting from ADC radars. Particular emphasis was placed on the importance of reporting interference from ADC radars to civil systems in accordance with procedures outlined in ADC Supplement 2 to AFM 100-24. This subject was further emphasized in Secret msg ADOAC-AF 2398, 22 Dec 61 (addressed to Hq AFSC, with info copies to all air divisions except 64 and 73 Air Divs), and has been stressed in numerous communications to and in discussions with the staffs of air divisions currently engaged in integration of AN/FPS-24/35 radars into the ADC system. Part II: Air divisions are aware of present and potential problems associated with current and potential interference from ADC radars to civil frequency users. Recent investigations conducted by Hq GEEIA and by RADC (representing AFSC) indicate that a significant percentage of interference complaints are related to broadcast and audio

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ADOAC-AF

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SECURITY CLASSIFICATION

CONFIDENTIAL

INITIALS

DD FORM 173-1
MAY 55

SUPPORTING DOCUMENT NO. 6

U.S. GOVERNMENT PRINTING OFFICE: 1955-000000

JOINT MESSAGEFORM - CONTINUATION SHEET

SECURITY CLASSIFICATION

CONFIDENTIAL

FROM

ADC ENT AFB COLO

entertainment systems being affected by the legally assigned operating frequency of one of the new high power radars. This hq is not aware of any policy guidance which exists for coping with this aspect of the problem. It will be necessary to seek guidance in this area from USAF and possibly at top national governmental level.

Part III: In spite of procedures and cautionary action mentioned in Part I above, this hq has recently been advised of serious interference from an ADC radar to civil broadcasting service by Hq USAF, along with a directive that the ADC facility is to be closed down pending investigation of problem. This hq was unaware of the above-cited incident prior to notification by Hq USAF, who had in turn acted upon a complaint from a US Senator. The necessity for avoidance of such occurrences ~~if possible~~ is obvious. Air Divisions are again cautioned to insure that appropriate staff and operating personnel comply with existing interference reporting procedures. Furthermore, air divisions having supervisory responsibility for AN/FPS-24's and AN/FPS-35's are requested to make special effort to insure that this hq is kept fully aware of any problems related to interference to civil usage on a current basis. Direct telephone calls to

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INITIALS

JOINT MESSAGEFORM - CONTINUATION SHEET

SECURITY CLASSIFICATION

CONFIDENTIAL

FROM:

ADC ENT AFB COLO

ADOAC-AF, Ext 6764/6384 are encouraged. Part IV: For 25, 26, 29 and 30 Air Divs only: Subject of cross-border interference resulting from radar operation is still under discussion between Canadian military and civil authorities. Pending further instructions, request that any discussions of these problems with Canada be limited to RCAF personnel and this hq advised immediately if new problems arise. SCP-4.

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SECURITY CLASSIFICATION

CONFIDENTIAL

INITIALS

DD FORM 173-1
MAY 55

SUPPORTING DOCUMENT NO. 6

U. S. GOVERNMENT PRINTING OFFICE: 1955-52255

JOINT MESSAGEFORM

SECURITY CLASSIFICATION

CONFIDENTIAL

SPACE BELOW RESERVED FOR COMMUNICATION CENTER

PRIORITY	TYPE Msg (Check) <input checked="" type="checkbox"/> SINGLE	ACCOUNTING SYMBOL AF	ORIG OR REFERENCE ADOAC-AF 22359 RCZMWT 10924	CLASSIFICATION OF REFERENCE UNCLAS
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FROM: ADC ENT AFB COLO

TO: CSAF

INFO: AFSC ANDREWS AFB MD
 ESD L G HANSCOM FLD MASS
 ADC COMD CTL DEF SYS OFC L G HANSCOM FLD MASS
 RADG GRIFFISS AFB NY
 GEEIA GRIFFISS AFB NY
 25AIRDIV MCCHORD AFB WASH
 26AIRDIV HANCOCK FLD NY
 28AIRDIV HAMILTON AFB CALIF
 29AIRDIV RICHARDS GEBEUR AFB MO
 30AIRDIV TRUAX FLD WISC
 32AIRDIV OKLAHOMA CITY AFS OKLA
 EASTERN GEEIA RGN BROOKLEY AFB ALA
 CENTRAL GEEIA RGN TINKER AFB OKLA
 WESTERN GEEIA RGN MCCLELLAN AFB CALIF

SPECIAL INSTRUCTIONS

ADD DATE FOR RECLASSIFICATION
 DECLASSIFIED BY: 1000000000
 JUL 1990

CONFIDENTIAL ADOAC 1791

DATE TIME
 6 22 15 Z
 MONTH YEAR
 JUL 1962

SYMBOL ADOAC

WRITER
 MAY BRUCE HIGGINS/ms (required)
 PHONE 6764
 SECURITY CLASSIFICATION **CONFIDENTIAL**

PAGE NR. 1 NR. OF PAGES

SIGNATURE

TYPED (or stamped) NAME AND TITLE
 ROBERT T. HOSEIN
 Colonel USAF
 Director
 Communications-Electronics

10 JUL 1962

JOINT MESSAGEFORM - CONTINUATION SHEET

SECURITY CLASSIFICATION

CONFIDENTIAL

FORM

ADC ENT AFB COLO

Action AFSME, AFOAC and AFOOP at USAF; Info SCSEW at AFSC; ESSGD at ESD; AD4CS at ADC CCDSO; BALCE at RADC; ROZMW at GEEIA; OAC at ADC Air Divs; MOZMMIX at Eastern GEEIA; OCZOMSI at Central GEEIA; SMZSMBI at Western GEEIA. Interference at AN/FPS-24/35 Sites (U). References: a. Unclas msg ADOAC-AF 22359, 14 Jun; b. Unclas msg Hq GEEIA, ROZMWT 10924, 2 Jul, Subj: Interference Problem, Cottonwood, Idaho. This msg in 3 parts. Part I: Requirement for policy guidance to ADC and technical agencies as basis for dealing with interference from FPS-24/35 radars to civil entertainment facilities has become increasingly critical. In addition to examples cited in above referenced msgs, serious interference has now been reported in connection with FPS-24 radars at Winston-Salem, NC, and Port Austin, Mich. Deployment of population and civil usage located in Winston-Salem, High Point, Thomasville and Greensboro, NC (practically surrounding the radar site) makes employment of blanking technique an extremely doubtful solution even on a temporary basis. Desirability of continuation of normal testing at this site has been weighed against strong possibility of users' complaints (possibly through Congressional channels). In absence of guidance from your hq and possibly national level, consider that no satisfactory solution can be reached. In addition,

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SUPPORTING DOCUMENT NO. 7

U. S. GOVERNMENT PRINTING OFFICE: 1963-82288

JOINT MESSAGEFORM - CONTINUATION SHEET

SECURITY CLASSIFICATION

CONFIDENTIAL

FROM:

ADC RNT AFB COLO

analysis of pertinent engineering studies and interference surveys, as reinforced by reports from the field, indicates that a potential for serious complaints exists in the local area of all AN/FPS-24/35 radars now on the air. Part II: As stated in reference a above, this hq is concerned about strong probability of interference at FPS-24/35 sites not yet in the test phase, especially those adjacent to the Canadian border. The Oakdale (Pittsburgh) site is another source of particular worry, in view of problems related to potential degradation to FAA coverage at this joint-use location. Part III: The sum of the situation described above and in cited references amounts to a strong probability of serious reduction of this command's defense capability through limitation of the surveillance contribution of the radars in question. Proposal contained in reference a above is considered to be a necessary preliminary to formulation and provision by your hq of policy which will clarify responsibilities of the Air Force and of victim users and which will attempt to develop a joint approach by the appropriate military and civil authorities believed to be necessary to final solution of these problems. Urgently request earliest decision on the above-cited ADC proposal, with consideration to alternate approach to earliest development of needed

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JOINT MESSAGEFORM - CONTINUATION SHEET

SECURITY CLASSIFICATION

CONFIDENTIAL

FROM:

ADC ENT AFB COLO

policy, if such course of action is preferred by your
hq. SCP-4.

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SECURITY CLASSIFICATION

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INITIALS

DD FORM 173-1
1 MAY 55

SUPPORTING DOCUMENT NO. 7

U. S. GOVERNMENT PRINTING OFFICE: 1955-581284

Interference

21 AUG 62 13 39

SUSPENSE
ACTION
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21 August 1962

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UNCLASALDO1840JWA865
RR RUMGAL
DE RUEAHH 206
ZNR
R 211043Z
FM COMS USAF WASH DC
TO RUEAHP/RADC GRIFFISS AFB NY
RUEAGP/CEEA GRIFFISS AFB NY
INFO RUMGAL/ADC ENT AFB COLO
RUEAHP/AFSC ANDREWS AFB MD
RUEGPO/EGAC ANNAPOLIS MD
RUEADP/ESD L. C. HANSCOM FLD MASS
BT

UNCLAS AFSC-EE/CE 78-88
ACTION FOR RUMGAL AND RUMMA. INFO: RUMT, SCSEW, ADDAC, EGAC, ESSG.
SUBJECT IS 4101 INTERFERENCE. REPRESENTATIVES OF THE FEDERAL COM-
MUNICATIONS COMMISSION WERE BRIEFED BY MAJOR CHRISTIE, RADC ON 15
AUGUST 62. FCC PERSONNEL APPEARED TO BE RECEPTIVE TO COOPERATION IN
A PUBLIC RELATIONS APPROACH TO INTERFERENCE PROBLEMS AS DEVELOPED AT
4101 INTERFERENCE CONFERENCE HELD AT ESD ON 31 JULY 62. DURING THE
BRIEFING IT WAS AGREED THAT THE FOLLOWING ACTION SHOULD BE TAKEN:
(A) PREPARE TO BRIEF REPRESENTATIVES OF ELECTRONIC INDUSTRIES
ASSOCIATION (EIA), INSTITUTE OF RADIO ENGINEERS (IRE), AND OTHER

PAGE TWO RUEAHQ 898

PROFESSIONAL AND TECHNICAL GROUPS. (B) TO PREPARE TECHNICAL INFORMATION FACT SHEETS FOR DISTRIBUTION TO FCC AND OTHER INTERESTED PARTIES. THIS HEADQUARTERS WILL ARRANGE FOR PART (A) ABOVE. MAJOR CHRISTIE IS REQUESTED TO BE PREPARED TO PRESENT THE BRIEFING. RAIC AND GEEIA ARE REQUESTED TO PREPARE THE TECHNICAL FACT SHEETS INDICATED IN (B) ABOVE. PAPERS ARE TO BE PREPARED AND FORWARDED TO THIS HEADQUARTERS FOR REVIEW AND DISTRIBUTION. SEPARATE FACT SHEETS WILL BE PREPARED FOR INDIVIDUAL GROUPS ENUMERATED BELOW IN PRIORITY ORDER SHOWN:

(A) FEDERAL COMMUNICATIONS COMMISSION PERSONNEL INCLUDING FIELD ENGINEERING AND MONITORING PERSONNEL. THIS GROUPING TO INCLUDE FCC LICENSED BROADCAST ENGINEERS.

(C) COMMERCIAL RADIO AND TV SERVICEMEN.

(C) TELEVISION AND RADIO MANUFACTURES. INHERENT IN THIS REQUIREMENT IS THE NECESSITY FOR RADCO TO STUDY THE SPECIFIC INTERFERENCE EFFECTS OF RADAR UPON COMMERCIAL EQUIPMENT AND TO DEVELOP FIXES FOR VARIOUS TYPES OF INTERFERENCE.

(D) A NON-TECHNICAL EXPLANATION FACT SHEET FOR THE GENERAL PUBLIC.

(E) CONGRESSIONAL INTERESTS. IT IS REQUESTED THAT THE FIRST OF THESE PAPERS BE PREPARED AND FORWARDED PRIOR TO 15 SEPTEMBER 1962. THE

PAGE THREE RUEAHQ 898

BALANCE SHOULD FOLLOW AS SOON AS AVAILABLE. THE CONGRESSIONAL INFORMATIONAL PAPER WILL BE PREPARED BY THIS HEADQUARTERS.

BT

21/16522 AUG RUEAHQ

21/19672

JOINT MESSAGEFORM

SECURITY CLASSIFICATION

CONFIDENTIAL

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24 Aug 62 17 07z

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

FROM

ADC ENT AFB COLO

TO

25AIRDIV MCCHORD AFB WASH

26AIRDIV HANCOCK FLD NY

28AIRDIV HAMILTON AFB CALIF

29AIRDIV RICHARDS GEBEUR AFB MO

30AIRDIV TRUAX FLD WISC

32AIRDIV OKLAHOMA CITY AFS OKLA

INFO: GEEIA GRIFFISS AFB NY

EASTERN GEEIA RGN BROOKLEY AFB ALA

CENTRAL GEEIA RGN TINKER AFB OKLA

WESTERN GEEIA RGN MCCLELLAN AFB CALIF

CSAF

AFSC ANDREWS AFB MD

ESD L G HANSCOM FLD MASS

ADC COMD CTL DEF SYS OFC L G HANSCOM FLD MASS

RADC GRIFFISS AFB NY

SPECIAL INSTRUCTIONS

DISTRIBUTION POINTS:
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DATE: 24 1962
 MONTH: AUG
 YEAR: 1962

CONFIDENTIAL ADOAC-AF 224

SYMBOL: ADOAC-AF

MAJ BRUCE HIGGINS/ms

PHONE: 6764

PAGE 1 OF 3

SECURITY CLASSIFICATION: CONFIDENTIAL

SIGNATURE: ROBERT T. HOSKEN
 Colonel, USAF
 Director
 Communications-Electronics

JOINT MESSAGEFORM - CONTINUATION SHEET

SECURITY CLASSIFICATION

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FROM

ADC ENT AFB COLO

Action OAC at all Air Divs; Info: ROZLW at GEEIA; MOZMIX at Eastern GEEIA Rgn; OCZOMSI at Central GEEIA Rgn; SHZSMBY at Western GEEIA Rgn; AFOOP-DE, AFSME-EE/GE and AFOAC-PF-E at USAF; SCSEW at AFSC; ESSGD at ESD; AD4CS at ADC CCDSO; RALCE at RADC. (U) Operation of AN/FPS-24 radars. This msg in 3 parts. Part I: It was officially recognized at a meeting held at ESD 1-2 Aug 62, under chairmanship of Hq USAF, that interference from these radars to audio and entertainment facilities, arising from the authorized fundamental emission of the radars within the assigned frequency bands, is essentially not the direct responsibility of the Air Force. Based on conclusions reached at this meeting, Hq USAF has already initiated action to brief and secure the support of the FCC and other appropriate civilian agencies in a program of public education and public relations which is aimed at solution of these problems through minor fixes to civil entertainment equipments. Further instructions and guidance will be forthcoming from this hq to air divisions at a later date. Part II: The above program, which is aimed at achievement of maximum freedom of operation for AN/FPS-24/35 radars through removal of blanking, etc., is based upon engineering appraisal by RADC that radars in question can be operated in a

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MAY 55

SUPPORTING DOCUMENT NO 9

U. S. GOVERNMENT PRINTING OFFICE: 1955-022226

JOINT MESSAGEFORM - CONTINUATION SHEET

SECURITY CLASSIFICATION

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FROM

ADC ENT AFB COLO

manner which precludes measurable spurious emissions outside the frequency bands assigned (216-225 mcs and 420-450 mcs). In the case of the FPS-24, RADC stipulates that operations must be restricted to indices 10 and above to insure absence of emissions below 216 mcs. Based on the above, the following limitations will apply to future operation of AN/FPS-24 radars: a. Operations will be limited to indices 10 through 15 except during emergency operational conditions; b. Deviation from limitations contained in a above will be limited to those necessary in connection with integration testing of the radar and will be carried out in a manner least likely to cause interference to adjacent frequency users and only after prior coordination with these users. Part III: Air divisions will disseminate instructions contained in Part II above to operating units to be posted as a pen and ink amendment to ADC Supp 1 to AFM 100-24. This amendment will be incorporated in the next change to that document. SCP4.

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SECURITY CLASSIFICATION

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INITIALS

DD FORM 173-1
MAY 55

SUPPORTING DOCUMENT NO

U.S. GOVERNMENT PRINTING OFFICE: 1955-022224

JOINT MESSAGEFORM

SECURITY CLASSIFIED ON

SPACE BELOW RESERVED FOR COMMUNICATION CENTER

20 Sep 62 22 07z

PRECEDENCE	TYPE MSG (C, P, R)	ACCOUNTING SYMBOL	ORIG OR REFERS TO	CLASSIFICATION (if different)
ACTION: ROUTINE PRIORITY	BOOK	MULTI	SINGLE	
INFO: ROUTINE	X		AF	

FROM: ADC ENT AFB COLO

TO: CSAF

INFO: ESD LG HANSCOM FLD MASS
 BSD NORTON AFB CALIF
 GEEIA GRIFFISS AFB NY
 ROAPA GRIFFISS AFB NY
 AFSCMC KIRTLAND AFB NMEY
 COAMA HILL AFB UTAH
 SAC
 AFSC ANDREWS AFB MD
 AFLC WPAFB OHIO
 DEPUTY IG FOR SAFETY NOPTON AFB CALIF

SECRET ADOAC-ER 2539

Action for AFSSA and AFSSS at CSAF. Info EGRDZ at ESD;
 BUREM and BECKE at BSD; ROZMNT at GEEIA; SWS at AFSCMC;
 OGYSS at COAMA; DM4E at SAC; SCTAE and SCIZM at AFSC;
 MCASI at AFLC; AFICS-3 at Deputy IG for Safety. (U)

SPECIAL INSTRUCTIONS

DISTRIBUTION:
 ADOP-FC
 ADOP-1
 ADOP-2

DATE TIME
 MONTH YEAR

WRITER	SYMBOL	ADOAC-ER	RELEASEE
	TYPED NAME AND TITLE (Signature, if required)	Mr. Douglas/kc	
	PHONE	6233	
	SECURITY CLASSIFICATION	SECRET	
SIGNATURE		SUPPORTING DOCUMENT NO. 7070	TYPED (or stamped) NAME AND TITLE
1: ANS: IAL, C. BROWN, JR Colonel, USAF Chief, Elet Sys Div		21 SEP 1962	

0A C-241



JOINT MESSAGEFORM - CONT. ACTION SECRET

SECURITY CLASSIFICATION

SECRET

FROM:

ADC ENT AFB COLO

Possible Detonation of EED's by FD Radars. ADC has been required to limit the operation (F-20, Selfridge) and stop Testing (SM-147, Malmstrom) of new FD radars due to the possibility of RF energy detonating EED's on both air to air and intercontinental ballistic missiles. This problem is growing every day and additional FD radars will be operationally limited. An urgent requirement exists today for immediate realistic measurements on these EED's to determine the impact on ADC operational capability. At the AF conference on 416L Interference Problems held at LC Hanscom Fld on 1-2 Aug 62, CEEIA stated that there is no agency which is attempting to define this problem at present with regard to the susceptibility of AF ordnance devices and combat weapon systems. It is imperative that an appropriate agency be designated immediately and a high priority effort be directed for elimination of this serious operational degradation. GP-4.

SUPPORTING DOCUMENT NO. 10

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SECURITY CLASSIFICATION

SECRET

INITIALS

DD FORM 173-1
MAY 55

U. S. GOVERNMENT PRINTING OFFICE: 1955-52278

JOINT MESSAGEFORM

SECURITY CLASSIFICATION

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110-62 21 203

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

FROM: HQ ADC

SPECIAL INSTRUCTIONS

TO: CSAF

INFO: ESD LG HANSCOM FLD MASS
 BSD NORTON AFB CALIF
 GEEIA GRIFFISS AFB NY
 ROAMA GRIFFISS AFB NY
 AFSWC KIRTLAND AFB NMEX
 OOAMA HILL AFB UTAH
 SAC
 AFSC ANDREWS AFB MD
 AFLC WPAFB OHIO
 DEPUTY IG FOR SAFETY NORTON AFB CALIF

RECEIVED
 17 OCT 1962
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SUPPORTING DOCUMENT NO. 11

SECRET ADOAC-ER 2718

For AFSSA and AFSSS at CSAF. Info ESRDZ at ESD; BSREM and BSORE at BSD; ROZMWT at GEEIA; ROAMA; SWVS at AFSWC; OOVSS at OOAMA; DM4E at SAC; SCTAE and SCIZM at AFSC; MCASI at AFLC; and AFIGS-3 at Dep IG for Safety.

DATE 11 13 30 7
 MONTH YEAR
 OCT 1962

SYMBOL ADOAC-ER

TYPED NAME AND TITLE (Signature if required)
 Mr. Douglas/mg
 PHONE 6233 PAGE NR 1 NR OF PAGES 2

SECURITY CLASSIFICATION
 SECRET

SIGNATURE

TYPED (or stamped) NAME AND TITLE
 EDWARD T POMPEA
 Lt Colonel, USAF
 Chief, Elct Sys Div 15 OCT 1962

0AC-836 ①

JOINT MESSAGEFORM - CONTINUATION SHEET

SECURITY CLASSIFICATION **SECRET**

FROM

HQ ADC

(U) Possible Detonation of EED's by FD Radars. Ref ADOAC-ER 2539 secret msg 20 Sep 62, same subject requesting that an appropriate agency be designated immediately and a high priority effort be directed for elimination of the serious operational degradation caused by the subject problem. Reports from 4 out of 6 Air Divisions state that EED's are stored and/or handled at or near 23 of our ACW sites. This number will increase when the remaining 2 Air Divisions' reports are received. The urgency of this problem can not be over-emphasized. The delay in providing a solution to this problem will result in: /1/ an intolerable degradation in radar coverage of operational FD radars and /2/ a slippage in operational dates of FD radars, due to inability to test radars until susceptibility levels are ascertained. In addition, it is anticipated that fixes for EED's may be required once the susceptibility levels have been determined. Slippage of an operational date for one FD radar (FPS-35 at P-20) has already occurred and another (FPS-24 at SM-147) appears likely. It is reiterated that the appointment of an agency to determine susceptibility levels and recommend fixes to EED's when required is essential if an early resolution to the problem is to be realized. Request ADC be advised as soon as possible your decision regarding this matter. GP4.

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SECURITY CLASSIFICATION

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INITIALS

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PRECEDENCE		TYPE MSG (Check)		ACCOUNTING SYMBOL	ORIG. OR REFERS TO	CLASSIFICATION OF REFERENCE
ACTION	ROUTINE	BOOK	MULTI	SINGLE		
INFO	ROUTINE		X			
FROM: ADC ENT AFH COLO					SPECIAL INSTRUCTIONS	
TO: EMD LG HANSCOM FLD MASS						
INFO: ADC COMD CONT DEV SYS OFC LG HANSCOM FLD MASS						
AFCC EGLIN AFB FLA						
MADC GRIFFISS AFB NY					SUPPORTING DOCUMENT NO. 12	
CONFIDENTIAL ADOAC-ER <u>1984</u>						
(U) Antenna Bearing Failure FFS-24 Emd n, Fufaula, Ala.						
The multiple antenna bearing failures experienced at						
TM-199, when compared with failure experience at similar						
operational sites, indicates the possibility of other						
than basic material failure. Suggest your expeditious						
investigation of the following possibilities: /1/						
Faulty pedestal and bearing installation. /2/ Possible						
deficiencies in tower construction, i.e. stability and						
leveling. ADC is aware that all past failures have						
involved bearings found to be of sub-standard material.						
The fact remains however, similar bearings are presently						
DATE		TIME				
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MONTH		YEAR				
JUL		1967				
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Maj Black/EG			ALAN R MICHAEL -			
PHONE	6233	PAGE	NR. OF			
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SECURITY CLASSIFICATION			EXECUTIVE OFFICER			
CONFIDENTIAL			27 JUL 1967			

SECRET (When filled in)

FD/S-014

24 Jan 1962

M-901
25 JAN 62 00 33

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LLA729HQAC05
PP RJEZHQ
QDE RJEZHQ 440
@ 242211Z
FM HQ USAF WASH DC
TO RJEZHQ/ADC ENT AFB SLD
INFO RJEZHQ/AFSC ANDREWS AFB MD
BT

INT SUSPENSE 29 Jan 62
ACTION LDC - CSA
INFO OAC - MME
LSP - MHC
OOP - CIO
OOC - LPO
CCS-4

SECRET NOFORN FROM AFORN 25508
REF YOUR MSG ADLHC 170, 21/22 JAN 62, SUBJ: (U) DETECTION OF
SUBMARINE LAUNCHED BALLISTIC MISSILES. THIS MSG RESPONDS TO YOUR
QUERY IS IN 4 PARTS. PART I. THIS HQS AGREES SLEB LAUNCH POINT
AND IMPACT POINT NOT REQUIRED FOR PURE WARNING INFORMATION. HOW-
EVER, THIS HQS ACTIVELY PURSUING POSSIBLE ROLE OF WEAPON SYSTEM
CAPABLE OF KILLING SLEB LAUNCHER. THEREFORE, LAUNCH AND IMPACT
POINTS REQUIRED. PART II. ADC CAN REST ASSURED THAT ANY MODIFICA-
TION TO TD RADARS, TO PROVIDE SLEB WARNING, WILL NOT DEGRADE ITS
PRIMARY FUNCTION OR COMPATIBILITY WITH SAGE. THE TD MODIFICATION

PAGE TWO RJEZHQ 440
PROPOSAL SUBMITTED YOUR HQS REMAINS SAME AT THIS TIME. HOWEVER,
ASSUMING FURTHER PURSUIT OF WEAPON TO NEGATE SLEB LAUNCHER, IT IS
POSSIBLE THAT THE SCOPE OF THE TD MODIFICATION WILL BE BROADENED
PART III. THIS HQS HAS NOT REACHED A FIRM DECISION ON TD/SLEB
TEST PROGRAM. PART IV. DDC IS INVITED TO ATTEND AFSC BRIEFING
THIS HQS ON JAN 26 SUBJECT ABOVE. BRIEFING TIME 1300 HOURS,
ROOM 4C-513. THIS MSG CLASSIFIED SECRET BECAUSE IT DISCLOSES
FUTURE OPERATIONAL CAPABILITIES. (S) SCI-A
BT

4/2235Z JAN RJEZHQ

42354

SPECIAL HANDLING REQUIRE
NOT RELEASABLE TO FOREIGN NATIONALS
The information contained in this document will not be disclosed to Foreign Nationals or their representatives.

SUPPORTING DOCUMENT NO. 13

JOINT MESSAGEFORM

SECURITY CLASSIFICATION

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25 JAN 1962 542

See next page

PRECEDENCE	TYPE MSG (Check)	ACCOUNTING SYMBOL	ORIG OR REFERS TO	CLASSIFICATION OF REFERENCE
ACTION INFO	ROUTINE	BOOK MULTI SINGLE	AF	AFORQ-AD88307
FROM:	ADC			SECRET

SPECIAL INSTRUCTIONS

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

SECRET FROM ADLPD 206

SUBJECT: (U) MESSAGE FOR YOUR INFORMATION. THE FOLLOWING MESSAGE, AFORQ-AD 88307 (S), TO ADC, INFO ESD IS QUOTED:

"ATTN: ADLDC. THIS MSG IN TWO PARTS. PART I. REFERENCE YOUR LETTER, SUBJECT "SLBM" DATED 18 DECEMBER. THIS HEADQUARTERS CONCURS IN THE RECOMMENDATION THAT A TEST PROGRAM BE INITIATED TO DETERMINE SYSTEM CREDIBILITY. FURTHER, THIS HEADQUARTERS WILL INITIATE THE NECESSARY ACTION FOR THE CONDUCT OF SUCH TESTS AS DEEMED NECESSARY. REFERENCE PARAGRAPH TWO OF SUBJECT LETTER. APPARENTLY, SOME CONFUSION EXISTS AS TO RECOMMENDATIONS CONTAINED IN ESD MSG ESSYK 1-12-1-E, WHICH STATES QUOTE: THE SPERRY PROPOSAL (FPS-35) IS CONSIDERED THE MOST DESIRABLE, SINCE IT IS THE LEAST COSTLY, THE LEAST COMPLEX AND PRESENTS THE LEAST SAGE INTERFERENCE, IF ANY; END QUOTE. PART II.

DOCUMENT CONTAINS INFORMATION OF A CONFIDENTIAL NATURE
 DATE 12-10-61 BY 10010

DATE	TIME
25	1607
MONTH	YEAR
JAN	62

SYMBOL	SIGNATURE	SUPPORTING DOCUMENT NO.
ADLPD		14
WRITER	TYPED (or stamped) NAME AND TITLE	
Lt Col Travis M. Scott	W. S. W. [unclear]	
PHONE 2183	Colonel, USAF	
PAGE NR. 1	Director, Advanced Plans	
NR OF PAGES 2	S. [unclear]	
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SECRET		

27 FEB 1962

14

JOINT MESSAGEFORM - CONTINUATION SHEET

SECURITY CLASSIFICATION

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FROM

ADC

REFERENCE PARAGRAPH TWO OF SUBJECT LETTER. THIS HEAD-
 QUARTERS AGREES THAT THE FB MODIFICATION MAY NOT BE THE
 MOST DESIRABLE METHOD IN OBTAINING A WARNING CAPABILITY
 AGAINST SLBM, HOWEVER, IT IS CONSIDERED TO BE THE MOST
 EXPEDITIOUS, LEAST COSTLY AND MAINTAINS SYSTEM
 COMPATIBILITY. FURTHER, SUCH A PROGRAM WILL NOT
 JEOPARDIZE CONTINUED DEVELOPMENT TOWARDS A FUTURE SYSTEM
 PROVIDING FAR GREATER CAPABILITY. SCP4" SCP4.

SUPPORTING DOCUMENT NO. 14

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PRECEDENCE	TYPE MESSAGE	ACCOMMODATING SYMBOL	ORIGIN OF MESSAGE	CLASSIFICATION OF MESSAGE	
ACTIVITY ROUTINE	GROUP MULTI SINGLE	AF	AFORQ 92137 AFORQ 75173	SECRET SECRET	
INITIALS	SPECIAL INSTRUCTIONS				
FROM HQ ADC					
TO ADC COMD CONTROL DEF SYS CFC L G HANSCOM FLD MASS					
<p>S</p> <p>SECRET NOFORN ADLPD <u>203</u></p> <p>THE FOLLOWING MSG FROM ADLDC TO HQ USAF FORWARDED FOR YOUR INFO AND GUIDANCE, "SUBJECT (U) DETECTION OF SUBMARINE LAUNCHED BALLISTIC MISSILES. REFERENCE (A) SECRET MSG AFORQ 92137 DATED 11 JAN SUBJECT AS ABOVE AND (B) SECRET MSG AFORQ 75173 DATED 2 NOV 61 SAME SUBJECT. REFERENCE (B) STATED THAT FD RADAR MODIFICATIONS WERE DESIRED TO SATISFY THE REQUIREMENT FOR AN INTERIM CAPABILITY TO PROVIDE DETECTIONS AND WARNING OF AIR, SURFACE (SEA) AND SUBSURFACE LAUNCHED MISSILES WITH RANGES UP TO 1500 NM. REFERENCE (A) ABOVE REQUESTED ESD TO ALSO PROVIDE INFORMATION AS TO THE POSSIBILITY OF USING THE PPS-35 RADARS TO DETERMINE MISSILE LAUNCH AND IMPACT POINTS OF THE FOLLOWING TYPES OF MISSILES, (A) POLARIS: (B) SOVIET SS-NO AND SS-NO IT IS NOT CLEAR THAT IMPACT AND LAUNCH POINT</p>					
COMBOL	SIGNATURE		SUPPORTING DOCUMENT NO. <u>15</u> TYPED FOR INDEX NAME AND TITLE Collected Disposal		
ADLPD	RELEASER		20 16 10 62		
LT COL SCOTT	PAGE 1 PAGE 2				
PHONE 2183	SECURITY CLASSIFICATION				
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JOINT MESSAGE FORM - CONTINUATION SHEET

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FROM:

DETERMINATION IS REQUIRED FOR THE INTERIM DETECTION AND EARLY WARNING CAPABILITY ENVISIONED IN REFERENCE (B) ABOVE. IN VIEW OF THE APPARENT MARGINAL CAPABILITY IN THE SLBM ROLE THIS COMMAND BELIEVES THAT ANY MODIFICATIONS MUST BE MINIMIZED SO AS NOT TO DEGRADE THE PRIMARY FUNCTION OF THE RADAR OR ITS COMPATIBILITY WITH SAGE. DOES THE ADDITIONAL DESIRED CAPABILITY CONSTITUTE A BROADENING OF THE RADAR MODIFICATIONS PROGRAM AS INITIALLY PROPOSED TO THIS HQ? HOW IS IT ENVISIONED THIS ADDITIONAL INFORMATION WILL BE UTILIZED? WHAT IS THE EXTENT OF THE CURRENTLY ENVISIONED TEST PROGRAM FOR THE FPS-24 AS RECOMMENDED BY THIS HQ IN OUR LETTER OF 18 DEC 61? AN EARLY ANSWER TO THESE QUESTIONS WOULD BE APPRECIATED." AS PREVIOUSLY STATED THIS HQ DOES NOT CONSIDER MODIFICATION OF THE FD RADARS AS THE MOST DESIRABLE APPROACH TO OBTAIN EVEN AN INTERIM SLBM DETECTION AND WARNING CAPABILITY. HOWEVER IF AN FD RADAR MODIFICATION PROGRAM IS TO BE INITIATED THEN FOR OPERATIONAL CONSIDERATIONS A TEST PROGRAM INCLUDING A MODIFIED FPS-24 IS RECOMMENDED. SCP 4.

SUPPORTING DOCUMENT NO. 15

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JOINT MESSAGEFORM

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ACTION	ROUTINE	BOOK	MULTI	SINGLE	AF	AFSSA 76381	SECRET	
INFO	ROUTINE							
FROM:							SPECIAL INSTRUCTIONS	
ADC								
TO: CNAF								
26AIRDIV HANCOCK FLD NY ESD L G HANSCOM FLD MASS								
INFO: ADC COMMAND CONTROL DEF SYS OFC L G HANSCOM FLD MASS							<div style="border: 1px solid black; padding: 5px; transform: rotate(90deg); transform-origin: center;"> DOWNLOADED FROM THE NATIONAL ARCHIVES DOCUMENT ID: A66100 </div>	
RADC GRIFFISS AFB NY								
AFSC SCOTT AFB ILL								
SAC								
SECRET FROM ADLPD							DATE	TIME
SUBJECT: (U) SIBW FPS-35 DETECTION CREDIBILITY TEST.							10	1020
USAF FOR AFSSA, ESD FOR 416L (LT COLONEL BOTH), RADC FOR RAC AND RALCOO (MR. FRANK), AFSC FOR SCSEW (MAJOR BLUE), SAC FOR GENERAL GOULD AND DFIP, CCDSO FOR GENERAL SALISBURY. THIS MESSAGE IN THREE PARTS. PART 1 TO USAF. REFERENCE YOUR MESSAGE AFSSA 76381 AND 77491. FPS-35 RADARS AT BENTON AND MANASSAS ARE BEING MADE							MONTH	YEAR
							AFB	67
SYMBOL				SIGNATURE				SUPPORTING DOCUMENT NO.
ADLPD								16
TYPED NAME AND TITLE (Signature if required)				TYPED (or stamped) NAME AND TITLE				
RAYMOND J. KAMINSKI, Major, USAF								
PHONE 2921				PAGE 1 OF 3				
SECURITY CLASSIFICATION								
SECRET								

JOINT MESSAGEFORM - CONTINUATION SHEET

SECURITY CLASSIFICATION

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FROM:

ADC

AVAILABLE TO ESD/RADC AND CONTRACTOR TEAM FOR THE PURPOSE OF CONDUCTING THE USAF APPROVED FPS-35 FEASIBILITY DEMONSTRATION. PART II TO 26TH AIR DIVISION, HEADQUARTERS USAF APPROVED AFSC (ESD) RECOMMENDATION THAT A SIXTY DAY TEST BE CONDUCTED TO DEMONSTRATE THE TECHNICAL FEASIBILITY OF MODIFIED FPS-35 RADARS AT BENTON AND MANASSAS TO PROVIDE AN SLBM DETECTION CAPABILITY. IF THESE INITIAL TESTS ARE SUCCESSFUL IT IS EXPECTED THAT MORE DETAILED SYSTEM CREDIBILITY TESTS OF SIX MONTHS OR MORE DURATION WILL BE CONDUCTED AT THESE LOCATIONS. IN VIEW OF THE IMPORTANCE AND SIGNIFICANCE OF THESE TESTS REQUEST YOU: (A) MAKE AVAILABLE TO THE AFSC TEST AGENCY AND SELECTED CONTRACTOR TEAM THE USE OF THE FPS-35 RADARS AT BENTON AND MANASSAS. FAA HAS AGREED TO THE USE OF THE FPS-35 AT BENTON. (B) MAKE AVAILABLE UPON REQUEST OF ESD/RADC TEST DIRECTOR USE OF ON-HAND TEST EQUIPMENT AND AGE. (C) INSURE AVAILABILITY OF ON-HAND SPARE PARTS. (D) INSURE PROPER MAINTENANCE WITHIN YOUR CAPABILITY OF THE MANASSAS FPS-35 DURING THE TEST. (E) PROVIDE WITHIN YOUR RESOURCES SUCH REASONABLE ASSISTANCE AS CAN BE FURNISHED. (F) ADVISE THIS HEADQUARTERS ATTENTION ADLPD ANY PROBLEMS WHICH MIGHT IMPEDE OR DELAY THIS USAF APPROVED TEST. PART III FOR ESD. DUE TO THE DEMONSTRATED

SUPPORTING DOCUMENT NO. 16

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JOINT MESSAGEFORM - CONTINUATION SHEET

SECURITY CLASSIFICATION

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FROM:

ADC

LIMITED OPERATIONAL CAPABILITY OF THE FPS-35 AND THE MAINTENANCE EFFORT REQUIRED, REQUEST ESD PROVIDE AUGMENTATION FOR MAINTENANCE IF REQUIRED OF THE MANASSAS RADAR DURING THE TEST PERIOD. REQUEST ESD CONCURRENCE. SCP 4.

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PRECEDENCE		TYPE MSG (Check)		ACCOUNTING SYMBOL	ORIG OR REFERS TO	CLASSIFICATION OF REFERENCE
ACTION INFO ROUTINE		BOOK	MULTI X	SINGLE	AF	
FROM: HQ ADC ENT AFB COLO					SPECIAL INSTRUCTIONS	
TO: ESD LG HANSCOM FLD MASS ADC COMD CTL DEF SYS OFC LG HANSCOM FLD MASS ROAMA GRIFFISS AFB NY					Group 1 DOWNGRADED AT 3 YEAR INTERVALS DECLASSIFIED AFTER 10 YEARS. DOD DIR 5 0010	
SECRET ADMOME-AB <i>1108</i> For ESSGE-2/ESD, AD4OP/CCDSO and RONUSB add RONSIC/ROAMA. Subject: ^(u) Certificate of Essentiality ECP 56232-5720-109 AN/FPS-35. This headquarters agrees to the conducting of this test at Manassas and Benton. The accomplishment of these tests are mission essential. Prior to the approval and implementation of these tests all agencies should be made aware of the limited maintenance capability at these sites. The FPS-35 at these two sites are not one hundred percent operational on both channels and WEADES testing has not been completed at Manassas. To improve the						
SYMBOL ADMOME-AB		SIGNATURE SUPPORTING DOCUMENT NO. <i>17</i>			DATE <i>23</i> MONTH APR	TIME <i>2:40</i> YEAR 1962
TYPED NAME AND TITLE (Signature, if required) Captain James B. Sandors PHONE 6478/6479		TYPED (or stamped) NAME AND TITLE ROBERT E. FLOETZ Col US Work Maintenance Management Division			NR. OF PAGE 2 PAGE NR 1 <i>25 APR 1962</i>	
SECURITY CLASSIFICATION SECRET		SECRET				

JOINT MESSAGEFORM - CONTINUATION SHEET

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FROM:

IRQ ADC ENT AFB COLO

SECRET

radar availability during this test a 30 day maintenance period is suggested using ESD supplied contractor support to insure that both stations are operating at peaked conditions prior to starting the test. ADC will provide maintenance support to the extent of existing capabilities. At the present time this is a limited capability. It is anticipated that additional maintenance support will be required and that the best source of this support would be from the prime radar contractor 30 days prior and during the SLEM test. The augmented maintenance assistance is considered necessary for the successful accomplishment of this test. Supplemental maintenance at Benton must be coordinated and agreed to by FAA. This certification has been made by the Dir of Maint this Hq. SCP4

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LLA054MCA967CZCALA0652CDYA213
PP RUCDAL
ZDK

PP RUEAHQ RUEAFF RUCDALB RUCDAL
DE RUCSBR 507
P 302359Z ZFF6 ✓
FM SAC

449

Test results

m-17910-3

1000Z 09 30Z

TO RUGHQ/CSAF
INFO RUEAFF/AFSC ANDREWS AFB MD ✓
RUCDALB/CINC NORAD ENT AFB COLO ✓
RUCDAL/ADC ENT AFB COLO

SUSPENSE
ACTION - PD-2
INFO - LDC-1
CSA-1
CIC-1 ✓
CCP-1
CNC-1
MME-1
MOC-1
CCS-1

BT
SECRET /CS 9539

THIS MESSAGE IN FOUR PARTS. PART I. REFERENCE IS MADE TO RECENT EXCHANGE OF MESSAGES CONCERNING MODIFICATION OF THE FPS-35 RADARS FOR SLBM WARNING. COMMENTS REQUESTED IN 95625 - MCKEE TO POWER, ARE AS FOLLOWS: (1) RESULTS OF THE RECENT FPS-35 SLBM TEST INDICATED THAT THERE WOULD BE A 50 PERCENT PROBABILITY OF DETECTING SLBM'S AT THE 700 NM RANGE. THIS PROBABILITY OF DETECTION IS EXTREMELY LOW AS COMPARED TO THE DESIRED 95 PERCENT DETECTION PROBABILITY

PAGE TWO RUCSBR 507

(2) IN REGARD TO THE ESTIMATED 700 NM RANGE WHICH HAS BEEN CONFIRMED, AFSC NOW INDICATES A FURTHER DEGRADATION TO 500 NM IN FULL SYSTEM CONFIGURATION OPERATION. (3) THE PSPP FOR THE FPS-35 MODIFICATION INDICATED A HIGH RISK PROGRAM, BASED ON THEORETICAL DATA, WITH AN OPERATIONAL DATE IN 1967 AS COMPARED TO A DESIRED DATE IN 1965. THE ESTIMATED 500 NM RANGE COMBINED WITH THE LOW PROBABILITY OF DETECTION FACTOR AND THE LESS-THAN-FULL COVERAGE WHICH WOULD BE OBTAINED FROM FIVE SITES, PLACES THIS PROJECT IN A LIMITED-CAPABILITY CATEGORY. PART II. IN ORDER TO OBTAIN A HIGH PROBABILITY OF DETECTION FACTOR AND THE ESSENTIAL CREDIBILITY OF WARNING, THE AIR FORCE HAS DEVELOPED AND PRODUCED THE FPS-49 RADAR, SPECIFICALLY DESIGNED TO DETECT BALLISTIC MISSILES. INFORMATION HAS BEEN PRESENTED TO THIS HEADQUARTERS WHICH ESTIMATES THAT FPS-49 RADARS COULD BE MANUFACTURED AND INSTALLED WITH FULL OPERATIONAL CAPABILITY WITHIN 24 MONTHS AFTER GO AHEAD: (A) THIS PROVIDES AN OPERATIONAL CAPABILITY IN 1965. (B) FOUR OR FIVE INSTALLATIONS EQUIPPED WITH FPS-49 RADARS LOCATED IN 71 COULD PROVIDE THE REQUIRED RANGE AND THE

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PAGE THREE RUCSBR 507
HIGH PROBABILITY OF DETECTION DESIRED. (C) MOST IMPORTANT
UTILIZING A SYSTEM ALREADY SPECIFICALLY DESIGNED TO DETECT
BALLISTIC MISSILES, WE CAN OBTAIN CREDIBLE TACTICAL SLBM
WARNING. (D) NO DEVELOPMENT PROGRAM IS INVOLVED. (E)
THE DOD TACTICAL WARNING STUDY GROUP RECOMMENDED \$100
MILLION FOR SLBM WARNING. THE ESTIMATED COST OF THESE
RADARS ARE WITHIN THIS AMOUNT. (F) SINCE THESE RADARS
HAVE BEEN SPECIFICALLY DESIGNED FOR BALLISTIC MISSILE
DETECTION AND TRACKING, A FOLLOW-ON CAPABILITY IS INHERENT
FOR UTILIZATION WITH THE AEROSPACE SURVEILLANCE WARNING
SYSTEM REQUIRED UNDER SOR-197 AND THE DETECTION OF ERBM'S.
PART III. DURING THE RECENT CUBAN SITUATION, EXPERIENCE
WITH THE TOMASVILLE FPS-35 DEMONSTRATED THE REQUIREMENT
FOR A LOW FALSE ALARM RATE AND HIGH SPEED DATA PROCESSING
TO PROVIDE USABLE WARNING. MANUALLY OPERATED SYSTEMS CAN
NOT RESPOND FAST ENOUGH. IN ACTUAL PRACTICE, RELIANCE
WAS PLACED ON THE FPS-49 AT MOORESTOWN FOR CREDIBLE WARNING.
PART IV. THE VALUE OF TACTICAL WARNING TO THE STRATEGIC
FORCES WAS SUBMITTED TO THE USAF TACTICAL WARNING STUDY
GROUP IN JUNE 1962. THIS DATA ALSO WAS SUBMITTED TO THE

PAGE FOUR RUCSBR 507
AIR DEFENSE PANEL ON 18 OCTOBER 1962. IN ADDITION THE THE
DIRECT VALUE TO THE STRATEGIC FORCES, THE VALUE OF TACTICAL
WARNING TO THE COMMAND CONTROL SYSTEM AND ALL GOVERNMENTAL
AGENCIES MUST BE CONSIDERED OF COROLLARY IMPORTANCE. SCP 4.
BT

2. 19912 DEC RUCSBR

118157

REF - M-16835, 14 OCT 62

SUPPORTING DOCUMENT NO. 18

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JOINT MESSAGEFORM

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

FROM: ADC

TO: CSAP

INFO: CINCNOAD (MESSENGER)

SAC

AFSC ANDREWS AFB MD

ESD L G HANSCOM FLD MASS

ADC COMB CON DEF SYS OFC L G HANSCOM FLD MASS

SPECIAL INSTRUCTIONS

SECRET ADLDC 3457

SUBJECT: (U) SLBM WARNING. USAF FOR AFORQ. NORAD FOR J-5. SAC FOR SACCS. AFSC FOR SCSEW. CUDSO FOR COLONEL DUTCHER. REFERENCE AFORQ MESSAGE 97751, 26 NOV 62. THIS MESSAGE IN FIVE PARTS. DELIVER DURING DUTY HOURS. PART I. THERE IS GENERAL AGREEMENT AMONG SAC, NORAD AND ADC THAT THE MODIFIED SYSTEM TESTED AT BENTON/MANASSAS WILL NOT PROVIDE CREDIBLE WARNING FOR THE SLBM THREAT. PART II. THIS HEADQUARTERS WILL

DATE 13 2130z
 MONTH YEAR
 DEC 62

SYMBOL RDLPD	SIGNATURE #180
TYPED NAME AND TITLE (Signature if required) W. R. KELSO, Colonel, USAF	TYPED (or stamped) NAME AND TITLE W. R. KELSO, Colonel, USAF
PHONE 2021 NO 1 PAGES 2	DCS/ Plans
SECURITY CLASSIFICATION SECRET	SUPPORTING DOCUMENT NO. 19

JOINT MESSAGEFORM - CORRELATION SHEET

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FROM:

ADC

DISCHARGE THE RESPONSIBILITY TO DETERMINE THE NUMBER AND LOCATION OF SENSOR SITES FOR ANY SYSTEM SELECTED AS INDICATED IN AFORQ MESSAGE 97751. PART III. REFERENCE IS MADE TO PART III OF 4 DEC 62 NORAD MESSAGE NHCR X-149. HUGHES AIRCRAFT LATEST SPS-33 PROPOSAL FOR SLBM WARNING WAS PRESENTED TO THIS HEADQUARTERS AND REPRESENTATIVES OF HQ NORAD AFTER THE REFERENCED MESSAGE WAS TRANSMITTED. AS PRESENTED BY THE CONTRACTOR, NORAD AND ADC CONSIDER THIS PROPOSAL VERY PROMISING TO FULFILL SLBM WARNING REQUIREMENTS. PART IV. UNDERSTAND HUGHES PROPOSAL NOW UNDERGOING PRELIMINARY ANALYSIS BY AFSC. WE CONSIDER MERITS OF PROPOSAL WARRANT ANALYSIS INsofar AS POSSIBLE ON SAME BASIS AS OTHER PROPOSALS. PART V. REFERENCE PART V OF CITED NORAD MESSAGE, REQUEST SPS-33 PROPOSAL BE INCLUDED IN PRESENTATION OF ANALYSIS OF PROPOSALS BY AFSC. PART VI. THIS MESSAGE COORDINATED WITH NORAD. GP 4.

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FROM: **ADC ENT AFB COLO**

TO: **CSAF**

SECRET ADCCR 469

Personal for ^{Gen} LeMay from ^{Gen} Lee ^{Info Gen Burchinal} Deliver during normal duty hours. Subject: (U) OSD Directed Phase-out of 6 Direction Centers and 17 Long Range Radars by End FY 64. This message in seven parts. Part I. References: USAF confidential message AFOOP 64559 dated 27 December 1962; my Top Secret letter dated 17 September 1962 forwarding the NORAD study (U) Report for the Secretary of Defense on Manned Bomber and NIKE ZEUS Effectiveness; USAF secret message AFXDC 65734 dated 4 January 1963; ADC secret letter, subject: (U) Preliminary Study for Reconfiguration of the Command and Control System 416L/M dated 18 January 1963 and attached study; USAF secret message AFOMO 74978 dated 8 February 1963. Part II. In my referenced letter of 18 January, subject as above, it

SPECIAL INSTRUCTIONS

DOWNWARD TO 1000 HOURS
D.C. 1000 HOURS
DATE

Newcomer 2/21/63

DATE	TIME
12	2110z
MONTH	YEAR
FEB	1963

SYMBOL ADLSP-CC
TYPED NAME AND TITLE (Signature, if required) ROBERT D. BASKERVILLE, LTC, USAF
PHONE 6225 NR 1 PAGES 5
SECURITY CLASSIFICATION

SIGNATURE	SUPPORTING DOCUMENT NO. 20
TYPED (or stamped) NAME AND TITLE ROBERT M LEE Lieutenant General USAF Commander	

JOINT MESSAGEFORM - CONTINUATION SHEET

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FROM:

DC

was pointed out that the deletion of six (6) SAGE Direction Centers and seventeen (17) long range radars by end FY-64 would result in a serious degradation in air defense capability and that the desired savings could not be attained through these early deletions. I, therefore, submitted two counter proposals. I have not received a reply indicating acceptance of my recommended proposal, nor have I received direction to proceed with the aforementioned deletions over my objections. USAF message, AFXDC 65734, dated 4 January 1963, quoted in part states, "the Air Force position at this time is: Resist phasedown of SAGE and heavy radars without compensating actions. Orderly phasedown of SAGE and heavy radars may require longer time to complete than end FY-64." There have been certain staff actions subsequent to the submission of my study which clearly indicate that actions are being undertaken by elements of the Air Staff which would result in the deletion of the six (6) SAGE Direction Centers and seventeen (17) Long Range Radars by end FY-64 contradictory to Headquarters USAF 4 January message, AFXDC-65734. These actions are as follows: (1) Program Guidance Document (PG 65-1), dated January 1963, is quoted in part: "A directed change is reflected in FY-64 which results in

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JOINT MESSAGEFORM - CONTINUATION SHEET

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FROM:

DC

a reduction of six Direction Centers and seventeen (17) Radars. The objective of this program revision is to reduce O&M fund requirements by \$35 million in FY-64 and \$75 million in FY-65." (2) Program Communications Electronics Document, (PC 65-1), dated January 1963, reflects an inventory of sixteen (16) Direction Centers and 114 Prime Radars, or a reduction of six (6) SAGE Direction Centers and seventeen (17) Radars in FY-64. (3) USAF Force and Financial Program, Volume II, dated 7 January 1963, reflects a reduction of three (3) radars in FY-63 with an additional reduction of six (6) Direction Centers and fifteen (15) radars in FY-64. (4) Hq USAF Confidential letter, AFABF, dated 29 January 1963, reflects OSD decision Number 423. "This decision reduces the 416L Surveillance System by \$14 million in P-450 funds in FY-64. (5) Hq USAF Secret message, AFOMO-74978, dated 8 February 1963, reflects a manpower space reduction of 5114 spaces related to the reduction of the six (6) DCs and the seventeen (17) radars in FY-64. PART III. The forced reduction of six (6) DCs and seventeen (17) LRRs reflected in these programming documents severely degrades the control capability of CINCNORAD in the post-ICBM battle phase. PART IV. NORAD's Report to the Secretary of Defense on Manned Bomber Defense and NIKE

VA

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RDB

SUPPORTING DOCUMENT NO. 20

JOINT MESSAGEFORM - CONTINUATION SHEET

SECURITY CLASSIFICATION

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FROM

XC

ZEUS Effectiveness, dated September 1962, made certain proposals for the elimination of Direction Centers and Radars. All deletions and reconfiguration actions were phased for end FY-64 with only minor fiscal and manpower savings for that year. The proposals were predicated on three factors: (1) Procurement of the Improved Manual Interceptor. (2) Early availability of an automated survivable command and control system (TRACE) and (3) Early availability of a flexible, survivable switched communications network. Reductions contingent on the above factors are being directed, although neither the automated BUIC system nor the switched communications network is attainable in FY-64. PART V. If forced into the six (6) DC and seventeen (17) Radar reduction in FY-64, the following posture will result: Only three sectors will have a full SAGE Mode II backup capability. Four sectors will have a very limited expansion capability. The remaining eight sectors will have only a manual capability if battle damage is sustained at the Direction Center. In the manual mode, ^{all SAGE (per)} ~~these~~ ^{currently (per)} sectors are austere-ly manned for single shift operation. This means that for 70 percent of the total environment, destruction of a Direction Center or communications network would result in major degradation in control capability and the

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JOINT MESSAGEFORM - CONTINUATION SHEET

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FROM:

DC

complete loss of centralized battle management in that sector. PART VI. It would appear that the DOD proposed reductions applied only basic budget and manpower slashes to effect economy without adequate consideration of the following: (1) Communications termination costs, (2) Communications reconfiguration costs, (3) Computer program costs for reconfigured sectors and (4) Contract termination and caretaker costs. The accomplishment of these crash reductions in FY-64 in my opinion would not result in the desired manpower and fiscal savings. PART VII. In view of the above, I believe that it is essential that the alternate proposal recommended in my 15 January 1963 study which was concurred in by CINCNORAD be approved. I have reviewed this matter with CINCNORAD and he concurs. GP 4.

SUPPORTING DOCUMENT NO. 20

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RR RUCDAL RUCDALA
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FM HQ USAF WASH D C
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SUSPENSE			
ACTION	CMO-2	IDC-1	LDC-1
INFO	PDC-1	CIO-1	PPS-1
	PDA-1	CIO-1	ABF-1
	PDD-1	CJA-1	AJP-1
	DDP-1	MSS-1	AAC-1
	DUC-1	LPP-1	CCS-4
	IRI-1	LFW-1	

BT
SECRET AFOAPD ALZICOM 32/63
SUBJECT: AIR DEFENSE GROUND ENVIRONMENT REDUCTIONS. THIS MESSAGE IN
THREE PARTS.// PART I. IN ACCORDANCE WITH JCS SM-224-63, 15 FEB 63,
SUBJ: FORCES FOR UNIFIED AND SPECIFIC COMMANDS 1 JAN 63 (U). THIS
IS TO ADVISE YOU OF THE PROJECTED PHASE DOWN OF SELECTED AIR DEFENSE
FACILITIES IN FY 64 AS DIRECTED BY OSD. THE SAGE DIRECTION CENTERS
SELECTED FOR EARLY PHASE OUT ARE MINOT, GRAND FORKS, SPOKANE, SAULT
STE. MARIE, SAN FRANCISCO AND SYRACUSE. PRIME RADARS SELECTED ARE:
TEXAS TOWERS 2 AND 3; M-103 LYNDONVILLE, VT; SM-138 AT GRAND RAPIDS,
MINN; RP-1 AT FT. LAWTON, WASH; SM-162 AT YUMA, ARIZ; M-93 AT

PAGE TWO RUEAHQ 14G
WINSLOW, ARIZ; M-116 AT CHERRY POINT, N.C.; SM-143 AT WALNUT RIDGE,
ARK; M-125 AT ENGLAND AFB, LA; TM-188 AT EAGLE PASS, TEXAS; M-95 AT
LAS CRUCES, N.M.; M-90 AT WALKER AFB, N. M.; TM-186 AT PYOTE, TEXAS;
TM-187 AT OZONA, TEXAS; TM-191 AT ROCKPORT, TEXAS AND P-78 AT
DUNCANVILLE, TEXAS. IN ADDITION, THE 32ND AIR DIVISION (SAGE)
HEADQUARTERS AT OKLAHOMA CITY AFS, OKLAHOMA WILL BE PHASED OUT IN
FY 64.//PART II. IN ADDITION TO THE LONG-RANGE RADARS, THE
FOLLOWING GAP FILLERS WILL ALSO BE PHASED OUT: M-95A EL PASO,
TEXAS; TM-187A MCCAMEY, TEXAS; TM-187 COMSTOCK, TEXAS; TM-188A
CARRIZO SPRINGS, TEXAS; TM-188C LAREDO, TEXAS; TM-191A RIVIERA,
TEXAS; TM-191B PALACIOS, TEXAS; TM-191C DELMITA, TEXAS; M-125C
WEEKS ISLAND, LA; M-125D LAKE CHARLES, LA.//PART III. THESE
FACILITIES WILL BE IDENTIFIED IN THE FORWARD OF PD 65-2. IT IS
ANTICIPATED THAT APPROPRIATE CONGRESSIONAL NOTIFICATION AND PRESS
RELEASES WILL BE COMPLETED WITHIN THE NEXT 20 DAYS, THEREFORE,
PHASE DOWN INFORMATION WILL NOT BE MADE AVAILABLE TO THE PUBLIC
UNTIL APPROPRIATE RELEASES HAVE BEEN RECEIVED. YOU WILL BE
FURNISHED A COPY OF THE PHASE DOWN PROGRAM IN EARLY APRIL 1963.

GP-4.
BT
22/2347Z MAR RUEAHQ

23/0353Z

SUPPORTING DOCUMENT NO. 21

SECRET

SLBM
SECRET

LLP427LBC1 56
PP RUCDAL 313
TO RUCDALB 22D
P (R) 212333Z ZFF-6
FM CINCNORAD
TO RUEAHQ/CSAF
INFO RUEPDA/OFFICE SEC OF DEFENSE
RUEAHQ/JCS
RUCSBR/CINCSAC
RUCDAL/ADC
AFGRNC
BT

22 MAR 63 06 03Z

N-1749-9

SUSPENSE

ACTION LDC-2
INFO

CAC-1 AHA-1
ODC-1 CIO-4-1
LPC-1 ADF-1
DUP-1 AAC-1
MLP-1 HOC-1
CIS-1 CCS-4
CIG-1

SECRET FROM NMCC X-026. REFERENCES: A. TECHNICAL DOCUMENTARY REPORT ESD-TDR-65-225. SUBJECT: A COMPARATIVE ANALYSIS OF SLBM DETECTION AND WARNING SYSTEMS, FEBRUARY 1963; B. MESSAGE, HQ ADC, ADLDC 821, DATED 19 MARCH 1963; C. MESSAGE, CINCNORAD, NMCR X-149, DATED 8 DECEMBER 1962. THIS MESSAGE IS FOUR PARTS; PART I. GEN LEE AND I HAVE BEEN BRIEFED ON THE CONTENTS OF REFERENCE A AND I AM AWARE OF HIS VIEWS PRESENTED IN REFERENCE B. I AGREE WITH GEN LEE THAT PHASED-ARRAY RADARS WILL PROBABLY BE THE MOST VERSATILE AND DESIRABLE SENSORS FOR THE MORE

SUPPORTING DOCUMENT NO. 22

PAGE TWO RUCDALB 22D
DEMANDING TASKS OF ACTIVE AEROSPACE DEFENSE AND SURVEILLANCE IN FUND LIMITATIONS FOR THE TOTAL WARNING SYSTEM PROGRAM WERE NOT A CONSIDERATION. THE PRIMARY CAPABILITY CONTAINED IN THESE SENSORS (LARGE TRAFFIC HANDLING CAPACITY), HOWEVER, IS NOT ESSENTIAL FOR THE SPECIFIC PURPOSE OF SLBM DETECTION AND WARNING (RAID RECOGNITION). IN ADDITION, ADOPTION OF SOME OF THE PROPOSALS IN REFERENCE A WOULD PRECLUDE, BY MONOPOLIZING AVAILABLE FUNDS, AN EARLY SOLUTION TO THE MORE IMMEDIATE AND PRESSING PROBLEM OF LOW ANGLE ICBM ATTACK THROUGH THE GAPS IN BMEWS. THE \$25 MILLION INCLUDED IN THE FY 1963 BUDGET NOW BEFORE CONGRESS FOR THE PURPOSE OF IMPROVING OUR TACTICAL WARNING POSTURE IS INADEQUATE TO INITIATE IN THE SAME TIME FRAME PROGRAMS FOR BMEWS GAP-FILLERS, AN SLBM DETECTION AND WARNING CAPABILITY, AND ADVANCED SENSORS FOR SPACE DETECTION AND TRACKING. IF WE ARE LIMITED TO THIS AMOUNT FOR IMPROVEMENTS TO OUR TACTICAL WARNING POSTURE IN FY 1964, I BELIEVE THE MOST JUDICIOUS USE OF THESE FUNDS WOULD BE TO INITIATE PROGRAMS TO FILL THE GAPS

SECRET

SECRET

PAGE THREE RUCDALB 22D
IN BIEWS AND PROVIDE THE EARLIEST POSSIBLE SLBM
DETECTION AND WARNING CAPABILITY. IN EXTENSION OF MY
INTEREST EXPRESSED IN REFERENCE C, DETAILED COMMENTS
ON THIS SUBJECT FOLLOW.

PART II. EITHER THE FPS-24/FPS-26 COMBINED SYSTEM OR
THE FPS-35 WITH THE BACK-TO-BACK 60 FOOT TRACKER ANTENNA
SYSTEM AS CONTAINED IN REFERENCE A APPEARS TO PROVIDE
AN ADEQUATE SLBM DETECTION AND WARNING CAPABILITY IN
VIEW OF THE THREAT AS IT IS ESTIMATED TODAY. THERE IS
LITTLE DIFFERENCE IN THESE TWO SYSTEMS IN TERMS OF
DETECTION RANGE, PROBABILITY OF RAID DETECTION AND FALSE
ALARM RATE. WHILE THE FPS-24/FPS-26 COMBINED SYSTEM
LEAVES FEWER SAC BASES EXPOSED TO SURPRISE SLBM ATTACK
AT LOW ANGLES, THE FPS-35 WITH THE BACK-TO-ACK 60 FOOT
ANTENNA SYSTEM IS APPARENTLY AVAILABLE ONE YEAR EARLIER
AND PROVIDES SIMULTANEOUS PERFORMANCE OF BOTH THE SLBM
DETECTION AND WARNING FUNCTION AND THE CONVENTIONAL
SAGE FUNCTION. PART III. I RECOMMEND YOU INITIATE A
PROGRAM IN FY 1964 WITH THE ONE OF THESE TWO PROPOSALS
WHICH PROVIDES THE EARLIEST POSSIBLE SLBM DETECTION AND

PAGE FOUR RUCDALB 22D
WARNING CAPABILITY WITH THE LEAST TECHNICAL RISK. THE
PROBLEM OF COVERAGE OF HUDSON BAY IN THE FINAL SYSTEM
CONFIGURATION IS UNDER STUDY. PART IV. IMPLEMENTATION
OF THIS PROGRAM IN FY 1964 SHOULD NOT BE AT THE EXPENSE
OF INITIATING A PROGRAM TO FILL THE LOW-ANGLE GAPS IN
BIEWS IN THAT FISCAL YEAR. SCP-4.

BT

21/2359Z MAR RUCDALB

2240539Z

16
20

SUPPORTING DOCUMENT NO. 22

SECRET

JOINT MESSAGE FORM

SECURITY CLASSIFICATION
SECRET

SLBM

SPACE BELOW RESERVED FOR COMMUNICATION CENTER

5 MAR 63 00 06

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

TO: ADC ENT AFB COLO

NORAD (MESSENGER)

SAC OFFUTT AFB NEBR

AFSC ANDREWS AFB MD

ESD LG HANSCOM FLD MASS

INFO: CSAF

ADC COMD CON DEF SYS OFC LG HANSCOM FLD MASS

SACSO LG HANSCOM FLD MASS

SPECIAL INSTRUCTIONS

SUPPORTING DOCUMENT NO. **23**

SECRET NOFORN EXCEPT CANADA ADLPC 637

Action NPSD, Maj Hogan at NORAD; DPLDS, Maj Parman at SAC; SCSEW, LtCol Hunt at AFSC; Advanced Plans, Maj Amon at ESD. Info AFRAED, Maj White at HQ USAF; AD4PL&T, Col Dutcher at CCDSO; Col Bainbridge at SACSO.

Subject: (U) SLBM and Perimeter Detection System.

During Nov and Dec 1962, CINCSAC, CINCNOBAD and the Commanders of AFSC and ADC expressed concern with the lack of capability to detect sea launched ballistic

DATE	TIME
✓ MONTH	2300 YEAR
MAR	1963

ADLPC-8

TYPED NAME AND TITLE (Signature, if required)

LEON O. GUNN, JR., LtCol, USAF

PHONE 3240

SECURITY CLASSIFICATION

NR 1 PAGES 2

SIGNATURE

TYPED (or stamped) NAME AND TITLE

GALEN B. PRICE
Colonel, USAF
Director of Aerospace
Command and Control

COMMANDER'S READING FILE

LPC-1102

23

JOINT MESSAGE FORM - CONTINUATION SHEET

SECURITY CLASSIFICATION

FROM:

ADC ENT AFB COLO

missiles and other potential weapons on the seaward approaches. Due to the various methods of achieving a perimeter detection capability and the numerous hardware proposals there was mutual concurrence in delaying support of any one system pending a comparative analysis by ESD of all proposed systems. Information received that the analysis has been completed and ESD has verbally concurred with March 11 and 12 for presentations and discussion at this headquarters, subject to AFSC approval. Subject presentation was requested in CINC-NORAD message (S) NHCR X-149, 4 Dec 62, and referenced in ADC message (S) ADLDC 3457 13 Dec 62. Objective of conference is (1) to obtain the results of the ESD study and (2) to achieve a joint NORAD, SAC, ADC understanding of the system required in consideration of all factors so that a suitable recommendation can be made to HQ USAF. Conference to be held in Chidlaw Bldg, Colo Spgs, Room 2-A-004, beginning 0930 11 Mar for ADC and SAC. NORAD to be briefed 12 Mar. All addressees are invited. Advise name, rank, security clearance of representatives attending and accommodations desired. Project Officer this headquarters, LtCol L O Gunn, Ext 3266 or 3267. For AFSC. Request approval be granted ESD for above presentations. (Gp-4)

SUPPORTING DOCUMENT NO. 23

SYMBOL	PAGE NO	NR OF PAGES	SECURITY CLASSIFICATION	INITIALS
ADLPC-S	2	2	SECRET	LOG

**SLBM
SECRET**

NRNHLB351HOA449
PP RUEAHO
DE RUEAHO 442
2622037
FM HQ USAF WASH D C
TO RUEAFA/AFSC ANDREWS AFB MD
RUEAFA/ADC ENT AFB COLO
RUCSBR/SAC OFFUTT AFB NEBR
RUEAFB/ESD L G HANSCOM FLD MASS
BT

27 MAR 63 01 19Z
N-2031-7
INT. SUSPENSE 9 APR 63
ACTION LPP 2
INFO CAC-1 MPH-1
COP-1 CID-1
CIG-1 CID-H
PHE-1 LDC-1

S E C R E T F R O M A F O R D . S T A G S
SUBJECT IS SLBM DETECTION AND WARNING. MESSAGE IN IV PARTS.
PART I. SLBM DETECTION AND WARNING PROGRAM IS
SCHEDULED FOR ANOTHER REVIEW BY THE AIR DEFENSE PANEL AND
STAFF BOARD DURING THE PERIOD 15-17 APR 63. AT THAT TIME IT
IS ESSENTIAL THAT ALL ELEMENTS BE PRESENTED WHICH ARE NECESSARY
FOR DETERMINING A COURSE OF ACTION. PRESENTATIONS ARE DESIRED
BY AFNIN, ADC, SAC, AND AFSC(ESD).
PART II. PRESENTATIONS WILL BE MADE IN FOUR SEPARATE INCREMENTS
IN THE FOLLOWING ORDER:

- PAGE TWO RUEAHO 442
- A. AFNIN WILL BRIEF ON THE LATEST EVALUATION OF THE SLBM THREAT DURING THE NEXT DECADE.
- B. SAC WILL PRESENT THEIR OPERATIONAL CONCERNS CONCERNING WARNING TIME UTILIZATION AND THE OPERATIONAL IMPACT OF SLBM WARNING IN 2 MINUTE INCREMENTS FROM 0 TO 20 MINUTES.
- C. AFSC WILL MAKE THE SAME PRESENTATION ON ALTERNATIVES GIVEN BY MAJOR AMAN OF ESD TO THE AIR STAFF BOARD ON 20 MAR 63. IN ADDITION, AN AFSC POSITION AND RECOMMENDATION IS DESIRED BASED ON ATTAINING AN ADEQUATE SYSTEM IN THE EARLIEST TIME PERIOD AT MINIMUM COST.
- D. ADC WILL PRESENT THEIR OPERATIONAL PREFERENCE CONCERNING THE ALTERNATIVES AND JUSTIFICATION FOR SELECTION.

PART III. ALTERNATIVES UNDER CONSIDERATION ARE THOSE PRESENTED BY ESD TO ADC/SAC REPRESENTATIVES AT ADC HQ ON 13-15 MAR 63. THEY CONSIST OF MODIFICATION OF SEAWARD SAGE; MODIFICATION OF FPS-24/26 SAGE RADAR; MODIFICATION OF FPS-35 RADAR WITH A 60 FOOT BACK-TO-BACK ANTENNA; PROCUREMENT OF FPS-49 RADAR; AND PROCUREMENT OF PHASED ARRAY RADAR.

PART IV. IT IS DESIRED THAT ALL PRESENTERS BRING FLUO CHARTS OR 8 X 10 TRANSPARENCIES. A TYPEWRITTEN COPY OF ALL TEXTS AND CHARTS PAGE THREE RUEAHO 442
WILL BE REQUIRED FOR SUBMISSION TO THE AIR STAFF BOARD. TOTAL PRESENTATION WILL BE LIMITED TO ONE HOUR. REQUEST INDIVIDUAL PRESENTATIONS BE CONDENSED AS MUCH AS POSSIBLE. FURTHER REQUEST NAME AND GRADE OF REPRESENTATIVE BE FORWARDED TO THIS HEADQUARTERS, ATTENTION AFORD, MEL 10 APR 63. REPRESENTATIVES WILL REPORT TO 5D1533 AT 0830 HOURS ON 15 APR 63.
SCP-4.

BT
26/2232Z MAR RUEAHO

SUPPORTING DOCUMENT NO. 24

26/2354Z

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SECRET

Lt. Col. Gunn.

SLEBM BY MEETING TO HQ USAF
16-17 APRIL 1963

ADC has been requested to provide the operational preference and the justification for this preference.

FIRST, I will review the criteria upon which our recommendations are based.

SECOND, the pros and cons from the operational viewpoint, of the systems and techniques under consideration.

Next, two potential combinations of these systems and,

Lastly, specific primary and alternate recommendations.

The ESD analysis and their recommendations are based on ground rules which limit the study to the SLEBM problem alone as they were directed to do.

However, we felt it was necessary to examine the proposed systems in terms of the total requirements that have been documented to insure consideration of all factors.

SUPPORTING DOCUMENT NO. 25

The formal requirements which have a bearing on the selection of a system are listed here.

NORAD, established the requirement for a sea-launched ballistic missile system with an initial capability of 500 MI in 1955, the ability to expand to 1500 nautical miles by 1964, and 2500 by 1967.

Also, the NORAD requirements for SPADATS-Improved included the requirement for detection and tracking of orbiting objects prior to first pass over the North American Continent.

The ADC COR for the Space Surveillance Warning and Control System included, as part of the total surveillance system required, a need for coverage against SLEBMs, Cruise Missiles, orbitable objectives and other potential offensive weapons which could approach the North American continent undetected.

This COR has been converted to SOR 197 for an Aerospace Surveillance and Warning System.

More recent positions were taken by the agencies that are listed across the top of this slide during the November and December 1962 exchange of messages on this subject.

NORAD, SAC and ADC agreed that a manual system would not do the job and that an automated system was needed.

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SUPPORTING DOCUMENT NO. 25

SECRET

NORAD advised that the requirement remained as stated in their NOR and that the system selected should not jeopardize the long range goals stated in their requirement for SPADATS-Improved.

SAC has expressed their views here this morning.

ABC recommended efforts be concentrated toward achieving a system which would be useful in the future.

SAC, ABC and WSC all referenced to one degree or another, the potential use of equipments being designed for SOR 197 as the way to go. And as you know, the initial PSPP for SOR 197 produced last November by SYSTEMS COMMAND recommended Phased Array Radars for the perimeter system.

On the basis of the formal requirements and the more recent positions stated in late 1962, we listed the criteria shown here to be used as the basis for evaluating the various systems. Included was:

In the event SAGE radars were utilized, they must continue to be compatible with SAGE.

The system must be highly automated in order to make maximum use of the short-detection, and reaction times.

The system must meet the 1000 nautical mile range requirements of SOR 79 as a minimum.

The system must have sufficient inherent flexibility to provide for growth to the ranges required in the NORAD Qualitative Requirement and the future requirements expressed in SOR 197.

Availability was a factor to be considered in that an interim capability might be necessary if a long delay for a fully capable system was anticipated.

Each potential system was compared against this basic criteria.

As you can see, only two systems are compatible with SAGE although the most recent ESD examination indicates that the 24/26 radars will also be compatible.

For SOR 79 the SAGE radar modifications come close, but do not provide 1000 nautical mile sea coverage as I will show later.

Only three of the systems, the FPS-49, the SPS-33 and the FPS-35 have the initial or future growth capability to meet the endpoint range of 1000 nautical miles stated in the NORAD

SECRET

Qualitative Requirement.

The systems, the phased arrays, have the growth potential to meet EOT 197.

Insofar as availability is concerned, one system has an advantage and that is the FFS-35 proposal.

We have reviewed the various systems and techniques from the operational standpoint.

There are advantages and disadvantages for each proposal which I will cover in the next few slides.

Seaward SAGE has been recommended for implementation by ESD as an interim capability. The advantages are:

It is cheap and quick.

However, its only tactical advantage is as a possible political deterrent.

This advantage can only be expected to have any effect until such a time as Aviation Week or Missiles and Rockets airs the true capability of this system. Its disadvantages are the short detection range of 100 nautical miles, and since it is basically a manual system, two minute minimum system reaction time from detection to warning appears to be about the best we can do.

This combination would most likely result in impact of the missile before it is displayed except for inland targets.

Also, there is a problem in that the FST-2 and possibly the FQ-7 may not be capable of processing SLEM data. This we are looking into now and have requested CDC to provide an analysis of this problem as soon as possible.

There may be a potential here for a very minimum and interim capability, but a recommendation to proceed cannot be made until certain aspects are clarified and the true value determined.

Certain problems are inherent in both of the FD radar modifications and I would like to cover these at one time.

In order to generate the power required for the ranges indicated in the ESD report, dual channel operation of these radars will be necessary. This, of course, means no back-up which in turn results in reliability going down.

SECRET

The air conditioning units are operating at maximum capacity at present under single channel operation. Therefore, additional air conditioning will probably be required.

Our technical people expect about a twenty percent increase in load time as well as a high consumption rate on the high power amplifier as a result of this mode of operation.

Both the F-24 and F-35 are difficult to maintain at present with only one channel operating. In addition, support has been critical. We anticipate considerable maintenance and logistic problems on these reconfigured radars.

These are some of the problems involved in the use of SAGE radars.

Also we have emphasized the need for compatibility with SAGE if these radars are used for other purposes.

This is due to the impact on the total surveillance plans if they are removed from SAGE.

For example joint use TIA sites, ALDI stations, construction for the DUCS as well as gap filler ties could be affected which in turn would be added system expense.

However, DSD, has recently advised that both systems will be compatible which may eliminate these as problem areas.

These are the FPS-35 sites proposed, although the radar range is estimated at 1000 nm, the actual available ranges from the coast are indicated by the numbers adjacent to the range line. Only Norfolk has 1000 nm actual sea range. The other sites average 370 to 830 with the worse case being the 730 nm range from Baker. This of course means a decrease in available warning time.

The underlying exposure is shown by the red hatching. No presently installed FPS-35's will cover these areas. The greatest exposure is through Texas and it would be necessary to relocate an FPS-35 to Laughlin to fill this gap.

The advantages and disadvantages are as indicated on the chart with the main advantage over the FPS-24 being the earlier availability and more certainty of SAGE compatibility.

These are the FPS-24 sites proposed.

Sea ranges again are indicated adjacent to the maximum range lines. This configuration has better overall range than the FPS-35 but is still under 1000.

SECRET

SECRET

Underly exposure is also better. However, an additional radar will be required to plug a similar gap in the south as with the FDC-25. The disadvantage of this system is that one (1) additional site is required and the system will be completed a year later.

Three advanced radars have been considered. Of these three, the FDC-25 has less growth potential in range and target handling capacity and is the costliest proposal of all. For this reason, sensors utilizing the phased array technique are preferred.

Since siting is not controlled by existing radars, the sites can be selected for optimum use.

Therefore, I will not go into the merits of each siting arrangement but will discuss the operational advantages of these equipments.

The superior features the Phased Array are shown here. The false alarm rate is essentially zero.

Probability of detection and sensor reliability is the highest of the techniques proposed. These two attributes are prime factors in determining the credibility and hence, the degree of confidence in warning data.

Phased Arrays will detect lower X-Section targets as well as track both the vertical and tankage. This could be advantageous in the face of potential technological advancements in

radar absorptive materials,

the possibility of tankage destruction or retrofire in the case of long range missiles, and

the possible use of decoys.

The simultaneous target handling capacity is, for all practical purposes, unlimited.

The accuracy of impact and launch point is considerably greater since the warhead itself is tracked rather than the tankage as is normally the case with lock on type trackers. This could be useful to future carrier destruction systems and terminal defense systems.

Of greater importance are the next two virtues which provide multi-purpose use of the sensor for the total threat spectrum and eliminates system obsolescence to a large degree.

The history of the SAM systems have always been a story of building systems on top of systems. The cost of equipments required to do the job in the next decade we feel precludes this approach.

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SUPPORTING DOCUMENT NO. 25

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It is recognized that the primary subject here today is SAGE's. However, AFSS believes that the total threat spectrum should be covered and that we must employ systems which can keep pace with the threat if such systems are available.

The satellite threat is controversial but I would like to say that AFSS considers there is a high potential for military offensive space systems in the future.

We feel this is substantiated by the recent emphasis on the 437 program.

As the potential of this new medium becomes exploited, long range perimeter coverage of the approaches to COMUS will be required, not only for warning, but weapon employment.

It has been stated that special purpose sensors will be utilized when defensive weapons are determined. We cannot deny that there is a possibility of special purpose sensors being required for the final stage of weapon direction.

But long range surveillance and earliest detection of the development of a threat will still be required for

overall battle management,

employment of resources and,

assignment of targets to these special purpose sensors.

We feel the Phased Array technique comes closest within today's state-of-the-art of meeting these future requirements.

Comparing the two techniques of SAGE Radars versus Phased Arrays, this is what we are buying.

In the case of the SAGE Radars:

Something less than a 1000 nm maximum range on a 2M² target; a decrease in target size further decreases this range.

These systems are dead end propositions having been beefed up to their maximum capability.

Separate systems will be required as more sophisticated threats develop.

In the case of Phased Arrays we feel they will do the total job for sometime.

G.

SECRET

SUPPORTING DOCUMENT NO. 25

SECRET

Such a system could be completed in about the same time period as the other proposals except for the FPS-35.

Although the initial expenditure is higher much of this can be a one time expense with proper design and planning for future expansion.

If economic constraints preclude initial implementation of a complete system of Phased Arrays, a mix of one or more of these sensors coupled with SAGE Radars, would at least get us a leg up.

Here is how such a combination might be deployed using FPS-24's as indicated in green with a Phased Array at Ft. Langford and Eglin indicated in blue.

Solid lines are underlying coverage limits and the blue dotted lines the initial Phased Array coverage.

Initial ranges on the Phased Array could be 1000 nm except for the first face of Eglin which is already programmed for 2000.

If a 2000 nautical mile missile materializes, or there is an appreciable increase in orbiting objects above this initial range, expansion to 2000 or 3000 miles could be accomplished.

The potential expansion is shown here.

Initially the two sites would provide positive detection of missiles as well as detection of the majority of orbiting objects approaching from the south prior to each pass over the North American continent.

The same situation exists if the FPS-24 is used in lieu of the FPS-35. However, one additional FPS-24 site will be required for a total of six FPS-24/26s and two Phased Arrays.

RECOMMENDATIONS

Our recommendation is to employ Phased Arrays for the perimeter system.

Implementation could be accomplished in phases with Phase I consisting of an SLEW capability at all sites, and a capability for orbiting objects at selected sites. 1000 nm should be the initial minimum range of the system.

Design for full growth expansion to encompass satellite detection and tracking and incremental increases in target handling capacity should be included in the initial design.

SECRET

It is for a secondary requirement today; however, we would be interested in not designing for the full growth.

Ray sites would be designed for ranges to 3000 mi.

The P-3 missile missile system should be added to the F93-35 as a radar. This would provide for detection of Cuban launched missiles as well as providing coverage against the P-3 against the detector volume of the radar. This amounts to a 100,000 program change.

If a complete system of phased arrays cannot be initiated, then an alternate is recommended.

Other alternate would provide at least a start for a more complete system and would consist of two, 2 phased Phased Arrays and two or six SAGE radars.

It is not limited to a low budget and to an SPM System only, without growth and with limited range and target capability than either the F93-35/33 combination or the F93-31/28 should be implemented.

SUPPORTING DOCUMENT NO.

3.

SECRET

JOINT MESSAGEFORM

SECURITY CLASSIFICATION

SECRET

SECRET

SPACE BELOW RESERVED FOR COMMUNICATION CENTER

27 MAY 63 10 30Z

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

FROM: ADC ENT AFB COLO

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

INFO: 9 AEROSPACE DEF DIV ENT AFB COLO (MESSENGER)

SPECIAL INSTRUCTIONS

Copies to:
ADDP-DE
ADDOA

SECRET ADLPC

1964

Action AD4PL&T at CCDSO. Info 9OPP at 9 Aerospace Def Div. Subject: (U) Moorestown 4102 Computer Program. During Project Falling Leaves a computer program for the IBM 7090 was written to provide interim warning of possible missile launches from Cuba. The requirement for a system to provide an SLBM detection and warning capability is stated in SOR 197, SOR-79 as amended, and in the NORAD Qualitative Requirement. It is understood that an improved computer program for the new 4102 computer at Moorestown can be adapted at an estimated cost of fifty (50) thousand dollars. Request you arrange for an analysis to be conducted with the 496L SPO on the feasibility and cost of adapting a program

DOWNING...
 GROUP 1
 EXCLUDED FROM AUTOMATIC DOWNGRADING AND DECLASSIFICATION

DATE 27 MONTH 16408 YEAR
MAY 1963

SYMBOL ADLPC-SB	SIGNATURE	SUPPORTING DOCUMENT NO. 76
TYPED NAME AND TITLE (Signature, if required) Maj Kaminski PHONE 3266 PAGE NR. 1 NR. OF PAGES 2	TYPED (or stamped) NAME AND TITLE GALEN B. PRICE Colonel, USAF Director of Aerospace Command and Control	
SECURITY CLASSIFICATION SECRET		

JOINT MESSAGEFORM - CONTINUATION SHEET

SECURITY CLASSIFICATION **SECRET**

FROM

ADC ENT AFB COLO

for the 4102 computer to provide a quick-fix SLBM detection capability using the Moorestown FPS-49 radar. The following additional guidance is furnished to provide a general, but not limiting, framework within which the analysis should be conducted. 1. Radar azimuth scan: 120 degrees to 130 degrees boresighted at 90 degrees. 2. SLBM ground ranges: 350 to 2000 NM. 3. SLBM path angles: 15 degrees to 59 degrees. 4. Missile burnout velocity: 5000 to 17,300 fps. 5. Nose cone radar cross section (assumed): 0.3 to 10 square meters. It should be understood that use of the 4102 computer program when approved will be for contingency operations only and will not compromise use of the Moorestown radar as a principal input to the SPADAT System. Request you advise this headquarters at an early date as to when the 496L SPO could complete this analysis. (Gp-4)



SUPPORTING DOCUMENT NO. **26**

SYMBOL ADLPC-SB	PAGE NO. 2	NR OF PAGES 2	SECURITY CLASSIFICATION SECRET	INITIALS ELK
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JOINT MESSAGE FORM

SECURITY CLASSIFICATION

SECRET

SLBM

SPACE BELOW RESERVED FOR COMMUNICATION CENTER

29 OCT 63 20 35z

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

FROM: ADC ENT AFB COLO

TO: ESD LG HANSCOM FLD MASS

INFO: AFSC

CSAF

RADC GRIFFISS AFB NY

ADC COMD CON DEF SYS OPC LG HANSCOM FLD MASS

SECRET ADLPC 5421

SPECIAL INSTRUCTIONS

For ESSX at ESD. Info SCSEW at AFSC; AFORQ at HQ USAF; RALSP at RADC and AD4PL at ADC Comd Con Def Sys Ofc. Subject: (U) FPS-85 SLBM Program. This message in four parts. PART I. References: A. ADC secret/Noform message ADLDC 821, 19 Mar 63. B. ADC Secret/Noform message ADLPC 4008, 5 Sep 63. C. ESD Secret message ESSXS-15-10-20-E, 18 Oct 63. PART II. Reference C, PART I above. ADC recommendation for a computer program change to the FPS-85 radar was presented to the Air Defense Panel and Air Staff Board, 16-17 Apr 63 as

DATE	TIME
29	2002
MONTH	YEAR
OCT	1963

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ADLPC-88

TYPED NAME AND TITLE (Signature, if required)
Lt Col Lau

PHONE **3266** PAGE **1** DIR. OF PAGES **3**

SECURITY CLASSIFICATION
SECRET

WRITER

SIGNATURE

SUPPORTING DOCUMENT NO. **27**

TYPED (or stamped) NAME AND TITLE
HUGH D. POW
Colonel, USAF
1st Lt, Air Force
Command and Control

RELEASER

JOINT MESSAGEFORM - CONTINUATION SHEET

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FROM

ADC ENT AFB COLO

part of the total ADC SLBM program recommendations. This requirement was also stated in reference A and B, PART I above. ESD was info addressee to these messages. PART III. This hq understands that the FPS-85 has the capability for two modes of operations: the normal satellite surveillance mode and a specially positioned fence which could be used for SLBMs. Information available this hq revealed that the special fence cannot be employed simultaneously with the satellite detection fence. The time required to switch from the satellite surveillance to the special detection mode will be approximately two minutes. This time delay is unsatisfactory. The FPS-85 must be capable of simultaneous detection and tracking of SLBMs without disrupting the satellite mission. To confine the 85 operations to one mode at one time could result in jeopardizing one or both missions. An example of this mode of operation was the use of the FPS-49 during "Falling Leaves." In this operation the satellite detection and surveillance capability of Moorestown radar was subordinated and its primary effort devoted to SLBM detection functions. This resulted in no tracking data on satellites from this radar ~~and~~ during the time it was in the SLBM mode. PART IV. To allow simultaneous employment of the two detection modes, additional

PROGRAM

ADLPC-SS

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ADC ENT AFB COLO

Computer Program Change recommended by ADC would provide highest probability of detection of missiles from a high threat area for minimum cost of approximately 160 thousand dollars. (Gp-3)

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JOINT MESSAGEFORM

SECURITY CLASSIFICATION

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16 Nov 63 00 28

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

FROM: HQ ADC ENT AFB COLO

SPECIAL INSTRUCTIONS

TO: CSAF

SECRET FROM ADLDC 5695

Reference your AFSPD 66636. Our recommendation for transfer of the USAF collateral msn for ASW was based on ADC attaining an SLBM detection capability with the AWACS and ESPAR systems. The capabilities of the AWACS system as since stated in SOR 206 do not include an SLBM detection capability. Further, approval to modify selected SAGE radars will not provide an SLBM detection capability until CY 1966. ADC forces, therefore, will have no appreciable ASW capability before that date. Earlier msn assignment however is desirable if the AirForce ASW msn is to serve as a basis for ADC including potential ASW capabilities as a requirement in the development of future systems such as AWACS. In view of this, the proposed transfer date of 1 Dec is acceptable. Gp 4.

DOWNGRADED AT 3 YEAR INTERVALS
 DECLASSIFIED AFTER 12 YEARS
 DCD DIR 550.10
 Group 4

DATE	TIME
MONTH	YEAR
Nov	1963

WRITER	SYMBOL	ADLDC	CARRIER	SIGNATURE	SUPPORTING DOCUMENT NO. 28
	TYPED NAME AND TITLE (Signature, if required)	Lt Col J. J. Sylvester		TYPED (or stamped) NAME AND TITLE	PAUL T. PROUSS Major General, USAF DUS/Plans
	PHONE	3232		PAGE NR.	1
SECURITY CLASSIFICATION		SECRET			

HEADQUARTERS ADC STAFF SUMMARY SHEET

ROUTE TO	ACTION	SIGNATURE (Grade & Organization)	ORIGINATOR (Grade & Organization)	TELEPHONE NO.	DATE
ADODC	Coord	<i>[Signature]</i>	ADLPC-FA	3263	16 Oct 63
ADCCS		<i>Maj. Gen. Webster</i>			
ADOCV					
ADCCR					
			TYPED NAME AND GRADE OF ACTION OFFICER		
			Lyle W. West Lt Col, USAF		
			SIGNATURE OF ACTION OFFICER		TYPIST'S INITIALS
					Jal

SUBJECT

Clarification of Proposed ADC Policy on Deviation from Existing ADC/FAA Joint Use Agreements

SUMMARY

- Purpose:** This letter is in reply to Lt Gen Grant's personal letter to Lt Gen Thatcher, in which Gen Grant requests clarification of a proposed ADC policy on deviations from existing ADC/FAA joint use agreements.
- Background:** FAA and USAF have been unable to reach agreement on a joint policy that will permit deviation from established joint use agreements pertaining to the operation of joint FAA/ADC facilities in situations below that of an Air Defense Emergency or Presidential Proclamation of National Emergency. This problem was brought to light during the Cuban Crisis when USAF directed certain changes to the operating procedures and parameters of certain joint use radars. FAA refused to honor the military directives because the directives abrogated existing joint use agreements and would have impaired their ability to perform civil air traffic control functions. This matter was referred to the JRPG for consideration. FAA submitted a proposed policy to the JRPG which stated that the FAA would respond unequivocally to military direction in either an actual air defense emergency or a Presidential Proclamation of National Emergency. In all situations of lesser urgency, the FAA will insist upon adherence to established agreements. ADC representatives to the JRPG did not feel this policy to be acceptable and in lieu thereof submitted a proposed policy that would satisfy ADC operational requirements (Atch 1). FAA is now requesting clarification of the phrase "overriding military necessity" and delineation of the intent of paragraph "c" of the proposed policy.
- Correspondence Highlights:** The letter defines our understanding of the phrase "military necessity" as used in our proposed policy, and clarifies the intent of paragraph "c" of the proposed policy.
- Recommendations:** Recommend signature.

SUPPORTING DOCUMENT NO. 29

[Signature]
PAUL T. PREUSS
Major General, USAF
DCS/Plans

- 2 Atch
1. Policy ADC/FAA undtd Proposed FAA/ADC Joint Policy Concerning Deviations from Established Agreements Pertinent to Operation of Joint Use Sites
2. Personal ltr from Lt Gen Grant to Lt Gen Thatcher dated 7 Oct 63

3263

31 July 1963

ADLPC

Coordina-
tion

Deviation From Established Agreements Pertinent to
Operation of Joint Use Sites

FAA (A-1) (IM-130)
Wash 5 DC

ADLPC-FA

1. The attached correspondence reflects the ADC reaction
to the FAA proposal on this subject, contained in paragraph
1r of the Minutes of JRPG Meeting #34.

2. It is apparent that the divergence of opinion between
ADC and FAA will require a policy determination that is
beyond the capabilities or responsibilities of the JRPG.
Accordingly, the ADC position is being forwarded to Hq
NORAD for analysis and possible referral to DOD through
JCS. You will be kept informed of all developments
concerning this subject.

ADLPC

FOR-THE-COMMANDER

GALEN B. PRICE
Colonel, USAF
Director of Aerospace
Command and Control

1 Atch
Proposed Policy ADC undtd
Proposed FAA/ADC Joint Policy
Concerning Deviations from
Established Agreements
Pertinent to Operation of
Joint Use Sites

M/R: This advises FAA of the ADC reaction to their
proposal and informs them of the actions being taken
to resolve the problem.

LYLE W. WEST
Lt Col, USAF

SUPPORTING DOCUMENT NO. 30

Lt Col West/tmk/3263/10 July 1963

Control Number
3-7-283

PROPOSED
FAA/ADC JOINT POLICY
CONCERNING
DEVIATIONS FROM ESTABLISHED AGREEMENTS
PERTINENT TO
OPERATION OF JOINT USE SITES

Each FAA/ADC joint use radar site shall be equipped, maintained and operated as specified in the local agreement upon which joint use is based. Deviations from the local agreement shall not be made except as follows:

a. Minor equipment modifications, floor plan rearrangements, changes in electronic configuration, and changes in operating techniques not prohibited by FAA or military directives, may be made by agreement between the military unit commander and the FAA site engineer. In cases of disagreement, either party may refer the matter to the next higher level of command for resolution.

b. Under normal operating conditions, proposals concerning significant deviations from local joint use agreements shall be processed through established Joint Radar Planning Group (JRP) channels for joint FAA/ADC approval.

c. In urgent defense situations, the Commander, ADC will coordinate through a designated representative with a representative of the FAA Administrator concerning actions required in the national interest that deviate from established joint use agreements. FAA concurrence

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will be requested in each instance, and only in situations overriding military necessity will any actions be taken without FAA concurrence.

c. Upon declaration of Air Defense Emergency condition or Presidential proclamation of National Emergency, FAA will respond unequivocally to military requirements that may deviate from existing agreements.

will be requested in each instance, and only in situations overriding military necessity will any actions be taken without FAA concurrence.

c. Upon declaration of Air Defense Emergency condition or Presidential proclamation of National Emergency, FAA will respond unequivocally to military requirements that may deviate from existing agreements.

SUPPORTING DOCUMENT NO. 30



FEDERAL AVIATION AGENCY

Washington 25, D.C.

OCT 7 1963

OFFICE OF
THE ADMINISTRATOR

Dear Herb:

Reference is made to the ADLPC letter dated July 31, 1963, concerning Deviation from Established Agreement Pertinent to Operation of Joint Use Sites.

The Federal Aviation Agency is in the process of reviewing the proposed Air Defense Command policy entitled "Deviations from Established Agreement Pertinent to Operation of Joint Use Sites."

As indicated at the formal Joint Radar Planning Group meetings, the proposed ADC policy is unacceptable to the FAA without delineation of the term "overriding military necessity."

It is requested that the intent of paragraph "c" contained in the ADC proposal be amplified to allow this Agency to complete its review.

Sincerely,

151 Hal

HAROLD W. GRANT
Lt. General, USAF
Deputy Administrator

Lieutenant General Herbert B. Thatcher
Commander, Air Defense Command
Ent Air Force Base
Colorado Springs, Colorado

SUPPORTING DOCUMENT NO. 31

File
8

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

21 Oct 1963

Lieutenant General Harold W. Grant
Deputy Administrator
Federal Aviation Agency
Washington 25 DC

Dear Sir:

Reference is made to your letter dated 7 October 1963, concerning clarification of the proposed Air Defense Command policy on Deviations from Established Agreements Pertinent to the Operation of Joint Use Radar Sites.

In answer to your first question, the term "military necessity" as expressed in our proposed policy is intended to cover the almost infinite variety of possible situations which we may face in the future. Recent history, such as the Cuban Crisis, indicates that there very possibly may be many situations short of war which would require an immediate response on the part of the air defense forces. These situations are not foreseeable and it would be impossible to specifically delineate the exact point in time or stage in a growing crisis where it would be necessary to exercise this prerogative. It is for these reasons that I believe the phrase must be considered in the same broad context as it is used in paragraph 307(f) of the FA Act of 1958 (PL-85-726). This paragraph reads as follows:

"When it is essential to the defense of the United States because of a military emergency or urgent military necessity, and when appropriate military authority so determines, and when prior notice thereof is given to the Administrator, such military authority may authorize deviation by military aircraft of the national defense forces of the United States from air traffic rules issued pursuant to this title. Such prior notice shall be given to the Administrator at the earliest time practicable and, to the extent time and circumstances permit, every reasonable effort shall be made to consult fully with the Administrator and to arrange in advance for the required deviation from the rules on a mutually acceptable basis."

AOCB REALITY FILE

SUPPORTING DOCUMENT NO. 32

32

3267/461 West

In the interest of further clarity, I have directed my staff to follow the precedent quoted above and to rewrite paragraph "c" of our proposed policy as follows:

"Whenever it is essential to the defense of the United States because of urgent military necessity, and when the Commander, ADC, CINCONAD or higher U.S. military authority so determines, and when prior notice thereof is given to the Administrator, such authority may authorize deviation from existing joint use agreements concerning the operating parameters, procedures, or equipments at joint use radar sites. Such prior notice shall be given to the Administrator at the earliest time practicable and, to the extent time and circumstances permit, every reasonable effort shall be made to consult fully with the Administrator and to arrange in advance for the required deviation on a mutually acceptable basis."

If this wording is acceptable, we can meet these unforeseen military requirements with the least impact on the services provided by the FAA to the users of the airspace.

Since, as you know, ADC is a component of CONAD, this matter has been discussed with that Headquarters. CINCONAD concurs in these views.

Sincerely,

H. R. B. TRATCHER
Lieutenant General, USAF
Commander

SUPPORTING DOCUMENT NO. 32



FEDERAL AVIATION AGENCY
Washington 25, D.C.

32
ADDC
FILE

OFFICE
THE ADMINISTRATOR

JAN 29 1964

Dear Herb:

Reference is made to your letter dated October 21, 1963, concerning clarification of the proposed Air Defense Command Policy on Deviations from Established Agreements Pertinent to the Operation of Joint Use Sites.

The Federal Aviation Agency has reviewed the proposed ADC policy and is willing to accept the policy as revised in the referenced memorandum.

We have taken the liberty of including the revised proposal as an enclosure hereto.

Sincerely,

HAROLD W. GRANT
Lieutenant General, USAF
Deputy Administrator

Enclosure

Lieutenant General Herbert B. Thatcher
Commander, Air Defense Command
Fort Air Force Base
Colorado Springs, Colorado

SUPPORTING DOCUMENT NO. 33

JOINT MESSAGE FORM

SECURITY CLASSIFICATION

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OSI-A
SLBM

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ACTION INFO	ROUTINE	BOOK MULTI SINGLE		
FROM:	ROUTINE	X	AF	

SPECIAL INSTRUCTIONS

ADC ENT AFB COLO

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

INFO: ESD LG HANSCOM FLD MASS

SECRET ADLPC *908*

For AD4PL and AD4SY-Z at CCDSO. Info ESSG at ESD.

Subject: (U) Comparative Analysis of SLBM System. This message in three parts and confirms conversation LtCol Lau and LtCol Hall, 3 March 1964. PART I. Recent verbal reports indicate major improvements made in Over-The-Horizon backscatter techniques since ESD/MITRE Comparative Analysis of SLBM Detection System, February 1963. In addition to reports of accurate and consistent surveillance of aircraft crossing the Atlantic, the backscatter reports indicate a demonstrated capability to detect and differentiate between ICBMs and SLBMs. PART II. Request an immediate comparative study be made between the OTH backscatter and FD radars proposed for

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MONTH	YEAR
MARCH	1964

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	Lt Col Lau		
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3266	1	2	
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		TYPED (or stamped) NAME AND TITLE	
		CHIEF PRICE	
		CHIEF LIAISON	
		Director, Air Force	
		Command and Control	

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SECURITY CLASSIFICATION

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ADC ENT AFB COLO

the interim SLBM detection system based on most current data available. The study should encompass but is not limited to the following major points: A. Comparison of range coverages. Coverage should start from shore line. B. Number of sites required by each system to provide continuous coverage of waters wherein SLBM could be launched, i.e., Atlantic, Pacific, Gulf of Mexico, Gulf of California and Hudson Bay. C. Launch and Impact prediction accuracy. D. False track rates. E. Traffic handling capacity. F. Growth capability in range and accuracy. G. Capability of performing other tasks. H. Reliability. I. Computer Requirements. J. Costs. Breakdown to show capital cost and O&M. K. Realistic site schedules, locations and system FOC date. L. Equipment and system state-of-art. PART III. Request priority be given to this study and results forwarded to ADLPC-S by 12 March 1964. (Gp-4)

SUPPORTING DOCUMENT NO. 34

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2

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2

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ACTION	ROUTINE	BOOK	MULTI	SINGLE		
INFO			X		AF	

FROM: HQ ADC ENT AFB COLO

SPECIAL INSTRUCTIONS

TO:

- CSAF
- AFSC
- AFLC
- ESD L G HANSCOM FLD MASS

INFO NORAD

- SAC
- ADC COMD CON DEF SYS OFC L G HANSCOM FLD MASS

NOFORM EXCEPT CANADA
 SECRET/ADLPC 155-7

Action for Hq USAF/AFSPD, Hq AFSC/SCSEW, Hq AFLC/CONCO-B and Hq ESD/ESSG. Subject: ADC/NORAD comments on the SLEM System Package Program dated 1 May 1964. This message in 2 parts. Part I. Reference the Interim Sea-Launched Ballistic Missile Detection and Warning System Package Program dated 1 May 1964 and ESD message ESSG 5-4-17E dated 6 May 64. The following ADC/NORAD comments and/or recommendations are submitted: A. Document security

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MONTH	YEAR
64	64

SYMBOL	ADLPC
TYPED NAME AND TITLE (Signature, if required)	L/Col Duncan
PHONE	3263
PAGE NR.	1
NR. OF PAGES	7
SECURITY CLASSIFICATION	

SIGNATURE	GAVEN P. PRICE
TYPED NAME AND TITLE	Chief, USAF
SUPPORTING DOCUMENT NO.	35
	Control

CHANGEFORM - CONTINUATION SHEET

SECURITY CLASSIFICATION

ADC ENT AFB COLO

classification should be changed to Secret NOFORN Except Canada. B. Title should be changed to Interim Sea-Launched Ballistic Missile Detection and Warning System (SLBM) 416N. C. An explanation should be made in the Foreword that reference in the document to the SLBM program is the short title for the Sea Launched Ballistic Missile Detection and Warning System. D. Paragraph 1.1 of Foreword first sentence delete the words "counter the threat" and substitute words Provide warning. E. Page 1-1 Paragraph 1.1 delete the words "a central" and substitute the words the 425L. F. Page 1-2 underline the last two sentences to direct attention to the limitations of the system. G. Page 3-1 Paragraph 3.1.2.1 Second sentence delete the word "missiles". H. Page 3-12 add para 3.2.2.9.12 ADC will manage the programming, design, and construction of NSRP items located on ADC installations. I. Page 3-22 Para 3.4.2.9 add the following sentence at end of paragraph: Any new data processor must be of the solid state design with space requirements compatible with the proposed Improved BUIC System. J. Section 4 change all appropriate terms using Submarine Launched Ballistic Missiles to Sea Launched Ballistic Missiles. K. Page 4-5 Para 4.4.1 Change "two" square meters to "one" square meter. L. Page 5-1 Para 5.1.1 delete words "and

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SYMBOL	PAGE NO	NO OF PAGES	SECURITY CLASSIFICATION	INITIALS
ADLPC-AA	2	7		MRJ

ADIFORM - CONTINUATION SHEET

SECURITY CLASSIFICATION

ADC ENT AFB COLO

Hudson Bay area". M. Page 5-2 Para 5.3.2b delete words "and from the Hudson Bay area." Para 5.3.3 delete complete last sentence. Para 5.3.4 delete words "or a separate SLEM COP facility". N. Page 6-2 Para 6.2.1.2 delete words "and in Hudson Bay", Paragraphs 6.2.3.3 delete words "at the central facility or near" and substitute "in" for deleted words. O. Page 6-5 Para 6.3.12 add after training in the first sentence the words "Maintenance and supply." Para 6.4 under facilities add (ADIDC) NSRP. P. Page 6-7 Para 6.7.1.1 add to last sentence "To the satisfaction of the using command". Q. Page 6-13 Para 6.9.1 change last sentence in paragraph to read "Site maintenance availability" (A.) will ---. R. Page 6-19 Para 6.18 change alternate 1 to alternate 2. S. Page 6-20 Para 6.20.1 delete words in last sentence as nearly as possible. Para 6.20.2 delete shall accept in first sentence and substitute the words "will receive". Add new second sentence consisting of "Sensor sites will conform to transmitting requirements of the 425L CDP." Published second sentence delete the words "The CDP shall be modified where necessary to have" substitute the following words "The CDP will have." Para 6.20.3 Delete entire paragraph. T. Page 6-24 Para 6.23.1.2,1 add after 1500 NM the words "Polaris A-2 type". Delete words in first sentence after sensor. Second sentence

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SYMBOL	PAGE NO.	NR. OF PAGES	SECURITY CLASSIFICATION	INITIALS
ADLPC-AA	3	7		MRD

SAGE PARA - CONTINUATION SHEET

SECURITY CLASSIFICATION

ADC FMT AFB COLO

delete all words after sensor. U. Page 6-25 Para 6.23.1.3.2 delete the word "unmodified" in first sentence. V. Page 6-28 Para 6.23.1.4.1 first sentence 12.5 ^{M4} is too high for peak power with existing transmitter equipment. W. Page 6-29 Para 6.23.2.2.1 add after 1500 NM the words "Polaris A-2 type." Delete all words after sensor in first and second sentences. X. Page 6-30 Para 6.23.2.3.2 Delete the word unmodified. In addition if this is done, SAGE data will be significantly degraded. Para 6.23.2.3.4 last sentence 10 MW's is not an effective peak power output. Y. Page 6-32 Para 6.23.2.3.6. last sentence change the word "should" to will and add the word "search" before "data". Z. Page 7-1 Para 7.1 delete the word "COC" in last sentence. AA. Page 7-2 Para 7.5.2.2. delete entire paragraph. Para 7.5.3.1 delete first sentence. Para 7.5.3.2 delete the words "of approximately 100 SF of space." Para 7.5.4.1 change words "Cheyenne Mt. Complex" to "NORAD COC". BB. Page 7-3 change all reference to "CMC" to "COC". Para 7.5.4.2 delete entire paragraph and substitute, "No requirement has been interposed for FI shielding and has not been included in the above cost estimates". CC. Page 7-4 Para 7.5.4.3.2 delete entire paragraph. Para 7.5.4.3.4(a) change number from 9 to 8 and cost from \$160 to \$120. (b) change cost from \$368 to \$100 and (c) delete entirely. Total change from

SUPPORTING DOCUMENT NO. 35

SYMBOL

ADLPC-AA

PAGE NR 4

NR OF PAGE 7

SECURITY CLASSIFICATION

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INITIALS

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ADDITIONAL INFORMATION SHEET

SECURITY CLASSIFICATION

DC ENT AFB COLG

\$1940 to \$220. DD. Page 7-5 Para 7.6.1 Delete last sentence in paragraph. EF. Page 7-9 Para 7.15 add MCP to Thomasville in program column. FF. Page ~~7-10~~⁷⁻¹⁰ second paragraph, delete the words "and one new site must be constructed". Fourth paragraph delete all words after Eufaula AFS. GG. Page 7-11 "Summary of Cost Estimates" (a) add after total dollars O&M (b) add MCP (c) add O&M. H. Page 7-12 Under column "Program" add O&M and MCP. II. Page 8-1 Para 8.1.1.3 change the figure 6 to "affected". JJ. Page 8-5 Para 8/2.12.1 add to last sentence "To permit the required AGE to be on site at the time of operational acceptance." KK. Page 8-7 Para 8.3.1.4 first sentence change "assume" to "assure." LL. Page 8-8 Para 8.3.2.4 last sentence delete the word "the" and substitute the word "applicable" and add to end, "The contractor will identify materials/spares on hand by Federal Stock number if assigned or part members of federal stock numbers have not been assigned. A listing of identified material/spares on hand will be furnished to the site by the contractor." MM. Page 8-9 Para 8.3.2.10 First sentence substitute "for" in place of "of" and add IRAN between "SLBM" and "Will". Para 8.3.2.1.1 delete words "direct" and "site and substitute the words "furnish" and ADC EACC in place of. NN. Page

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11 Para 8.6.7.2 change word "to" to "with" 00. Page

ADLPC-AA	PAGE NR 5	TOTAL PAGES 7	INITIALS MRD
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DC INT AFB COLO

6-14 Para 8.9.1.1 change sentence to read "This system is designed to detect an SLEM raid within raid model limitations upon CONUS and give warning to NORAD, SAC and NMCC." PP. Page 9-4, Para 9.6.8 add 3 additional diesel operators for Thomasville and change all reference in Section from "A1744" to D1744. QQ. Page 9-5, change words "electrical" to "Electronic". RR. Page 9-6 Change words "electrical" to "electronic". SS. Page 10-1 Para 10.1.3 change "33 percent" to 30 percent. TT. Section 11 should include 458 and 300 series funds for civil engineering. UU. Page 11-6 Para 11.12 This is a necessary item therefore costs must be included in total. Total estimate should be ".460M" instead of ".180M". VV. Page 11-19 Para 11.12. This is a necessary item for the FPS 24/26, therefore the cost must be included in total. Total estimate should be ".525M" instead of ".175M". WW. Page 12-2, Para 12.2.3 add after central facility, "and to the NORAD ALCOP". XX. Page 14-1, Para 14.4.1 the 75 per cent detection probability is not in conformance with other criteria is SPP. Para 14.5 neither system described in this document meets the USAF minimum requirements of coverage of 1 sq meter target detection. Para 14.5.1. Recommend the additional FPS-35 be changed from Manassas, Virginia to a new site located in the area of Laughlin, Texas to fill the gap in under-

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ADLPC-AA

NR	PAGE
6	7

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INITIALS

JOINT M... CONTINUATION SHEET

SECURITY CLASSIFICATION

ADC INO AFB COLO

fly coverage in that area. YY. Page 14-4, Annex II recommend the entire PCP for the additional FPS-35 site be reaccomplished to reflect locating the fifth site in the Laughlin area. Part II. The System Package Program as written based upon a 4 site FPS-35 with 60 foot back-to-back antennas or the 5 site FPS-24/26 configuration does not fully meet the NORAD/ADC/USAF coverage requirements. NORAD/ADC concurs with the SPP providing the additional FPS-35 site or the FPS-24 site recommended in Section 14 is included as an integral part of the Interim SLBM Detection and Warning System. (GP 4)

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35

SYMBOL ADLPC-AA	PAGE NR 7	NR OF PAGES 7	SECURITY CLASSIFICATION	INITIALS MRD
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JOINT AIR FORCE FOLD		31 Jul 64 18 23z SLBM
SECURITY CLASSIFICATION		
TYPE MSG	INFO	
ACTION	ROUTINE	
INFO	ROUTINE	

FROM: ADC ENT AFB COLO

TO: CSAF

INFO TO: NORAD

SAC

ADC COMD CON DEF SYS OFC LG HANSCOM
FLD MASS

AFSC

SECRET NOFORN EXCEPT CANADA ADLPC

Action USAF (AFRSTE/Lt Col E Myers) Info NORAD (NPPP and NPSD) SAC (DPLBS/Maj K Plant) CCDSO (Lt Col C Hall) AFSC (Advanced Plans/Lt Col Arthur A Marston) Subject: ^(u) Air Force Study on Offshore Surveillance of CONUS. Reference your message AFRSTE-96508, dated 17 Jul 64. This message in 3 parts. PART I. Considering the probability of strategic intelligence with warning of enemy intent and the leveling off of the SLBM threat, we support a minimum cost interim system. Since the Air Force Study does not examine this minimum cost aspect in detail, ADC suggests the following: a. To provide east coast coverage. The

SPECIAL INSTRUCTIONS
 GROUP 6
 31 JUL 1964
 1

3266
 ARVY F. KYSELY, Lt Col, USAF
 Systems Integration Officer

SUPPORTING DOCUMENT NO 36

SECRET

DD FORM 175

U.S. AIR FORCE
 MAXWELL AIRFB, USAF
 DC-1/Plans

212 2420

SECRET

ADC ENT AFB COLO

use of the Moorestown FPS-49 radar to be diverted from its primary SPACETRACK role at an appropriate DEFCON to a SLBM detection and warning role. Investigation of the use of the Millstone Hill radar to augment the Moorestown coverage and to increase probability of detection. b. To provide Caribbean area coverage. Use of the FPS-85 radar at Eglin AFB Florida, in an additional role of SLBM detection and warning. c. To provide west coast coverage. Minimum cost modifications of the FPS-35 radars at Baker, Calif and Boron, Oregon. PART II. To meet the sub-launched cruise missile threat and possible extension of the SLBM threat, ADC supports immediate development of a CONUS OTH prototype with planning for a complete OTH system. PART III. In future examinations of offshore surveillance techniques, the potential capability of the AWAC system should be considered. That system could furnish a good SLCM/SLBM detection capability while on station and the IMI/AWAC combination might prove our best defense against the cruise missile. Gp 4

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 ENCL. 3
 The above information is for the use of the
 Director of the FBI only.

SUPPORTING DOCUMENT NO. 36

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28 Apr 1964

Joint Planning with the Federal Aviation Agency

Hq USAF (AFCCS)
Wash D C 20330

1. There have been numerous statements in recent years by responsible individuals which clearly indicate that it is national policy to develop an air traffic control system which utilizes to the maximum the air defense resources of the Department of Defense.

2. At the direction of the Secretary of Defense, the Continental Air Defense Study (CADS) included an examination of possibly integrating air defense and air traffic control facilities and functions. The Federal Aviation Agency (FAA) provided competent planners who participated in the preparation of the CADS report. The recommendations of CADS, which were approved by the Chief of Staff and the Secretary of the Air Force, included:

a. The development of an integrated radar surveillance system which would meet both the requirements of air defense and of air traffic control.

b. DOD support of FAA in the development of an automated air traffic control system.

c. The conduct of peacetime air surveillance by NORAD at automated air traffic control centers thereby relieving air defense control centers (Improved BUIC) of this task in the interest of economy.

d. Utilization of survivable communications by FAA.

e. A joint planning effort between DOD and FAA to achieve the above objectives.

3. The Air Defense Command considers these recommendations still valid. An integrated system can achieve considerable savings to the national economy, as has been proven in the ADC/FAA program for the joint use of prime radars. A modernized automated air traffic control system can give

SUPPORTING DOCUMENT NO. 37

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military aviation more efficient, safer peacetime air traffic service. An air traffic control system developed as a result of effective joint DOD/FAA planning can be of significant military value in wartime.

4. Nearly a year has passed since CADS was completed. Although little action on the major weapon system recommendations of CADS has taken place due primarily to funding limitations, it is believed that a worthwhile effort could be pursued if there were an effective planning mechanism to address the question of the development of an integrated ground environment. There has been no follow through on cooperation between FAA planners and military planners that existed during CADS. Although there is an adequate point of contact within the Air Staff for current operational matters involving FAA, there is no point of contact for planning future integrated systems. The DOD Advisory Committee on Federal Aviation, chaired by Assistant Secretary Charles, is considered an appropriate policy committee but not an appropriate agency to conduct detailed planning.

5. While it is recognized that other Services have a valid interest in the development of an improved air traffic control system, the Air Force has most to offer in achieving this goal. Conversely, the achievement of an integrated system will impact more on the Air Force than on any other Service. The Air Force Systems Command is experienced in developing command and control systems. ADC operates a network of radars most of which can be used by the FAA. ADC is experienced in operating automated control centers and has practical experience in working with FAA in automated air traffic control as a result of the joint use of the Great Falls SAGE Sector. ADC, in conjunction with AFSC, is planning modernization of the ADC ground environment through introduction of Improved BUIC. ADC has been cooperating with the FAA and its predecessor, the CAA, in the joint use radar program since 1956.

6. It is recommended that the Chief of Staff consider a proposal whereby the Secretary of Defense, with the concurrence of the Administrator, FAA, delegate to the Department of the Air Force the responsibility of planning with FAA for the development of an integrated air defense/air traffic control system as recommended by CADS. If the foregoing is approved, it is further recommended that ADC be charged with Air Force responsibilities under the staff supervision of an Air Staff agency of prime interest. Relations between ADC and AFSC would be as now prescribed. Unresolved policy problems arising during the conduct of

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planning either between the Air Force and the FAA, or between Air Force and the Army or the Navy could be referred to the DOD Committee on Federal Aviation for resolution.

7. The staff of ADC is prepared to discuss this proposal in greater detail. Office of Primary Responsibility in ADC is DCS/Plans (ADLDC).

HERBERT B. THATCHER
Lieutenant General, USAF
Commander

SUPPLEMENTING DOCUMENT NO. 37

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DEPARTMENT OF THE AIR FORCE
OFFICE OF THE CHIEF OF STAFF
UNITED STATES AIR FORCE
WASHINGTON, D.C.



22 May 1964

REPLY TO
ATTN: AFCCS

SUBJECT: Joint Planning with FAA

TO: ADC

- / TAB 1
1. Reference your letter, subject as above, dated 28 April 1964.
 2. This headquarters concurs with your proposal that the Air Force be charged to develop DOD/FAA plans for a future integrated air defense/air traffic control system, and will so recommend to OSD. A copy of our letter to OSD will be forwarded for your information.
 3. Meanwhile, it is desired that ADC submit a preliminary appraisal within the next 30 days regarding the command relationship, military requirements, FAA missions, tasks, and other factors that need to be considered in current preparedness planning covering the DOD/FAA wartime and emergency relationship.

John K. Hester
JOHN K. HESTER
Major General, US Air Force
Assistant Vice Chief of Staff

SUPPORTING DOCUMENT NO. 38

ADIDC^{DV}
File
K.

Joint Planning with FAA

22 JUN 1964

HQ USAF (AFCCS)
Wash. DC 20330

1. Reference is made to your letter, subject as above, dated 22 May 1964.
2. The Federal Aviation Agency represents a national resource that is of great potential value to the Department of Defense in a war emergency. The Agency possesses, as examples, highly trained specialists, a large communications network, a nationwide complex of air traffic control/air navigation facilities, an extensive depot supply and maintenance system, and ancillary resources required to support their statutory responsibilities. For these reasons, we are vitally interested in DOD/FAA command relationships and in a clear definition of the FAA wartime role and mission.
3. It appears to us that the FAA, in wartime, should be under the operational control of an appropriate operating military command. NORAD should be a logical choice, in view of the close relationship in both peace and war between elements of the air defense and the air traffic control systems. If this suggestion were approved, it is possible that both the NORAD and FAA missions and structure would require some realignment to accommodate the new relationship. To some degree, CINCNORAD would act as the representative and spokesman for all commands and services, and would consider the air operational requirements and missions of all DOD elements. Some FAA system realignment would be required to permit transition of operational control from the Administrator to the military commander. The chain of command and control for a war situation would have to be established from CINCNORAD down through intermediate organizational levels of both the military and FAA systems.
4. A preliminary appraisal suggests some areas for study in respect to the role and mission of the FAA during war. Others should result from joint study and from consultation with commands such as CINCLANT and CINCSAC. First, the FAA should continue to perform all of those functions for which they are responsible in peacetime. These functions would, of course, be subject to modifications

determined essential by competent military authority in meeting wartime military operational requirements. Second, the FAA system might, to a large degree, survive an initial bomber or missile attack because of their dispersal of key control centers and facilities. The contribution of such facilities could be of considerable value to the armed forces if a pre-emptive attack resulted in large-scale destruction of military communications and facilities. Third, a general war would require the United States to marshal every resource in preparing for follow-on attacks, reconstituting national forces, and restoring order. The FAA's organization and system could provide data on civil resources such as surviving usable airports, fuel reserves, location and type of civil aircraft still remaining, weather, etc. In addition, to providing information on the civil air system, the FAA might give direct support to DOD elements in the form of logistic and maintenance service from within the FAA system. The FAA's capability to provide the mechanism required to generate civil air logistics support in emergency reconstitution actions should be explored. Fourth, it is conceivable that the surviving FAA facilities and personnel could be utilized for emergency manual control of weapons, thus providing a limited backup to the regular air defense command and control system. All of these possibilities must be predicated on the assumption that the FAA system would be under the operational control of competent military authority.

5. Reference is made to a 30 May 1964 letter from the Secretary of Defense to the Administrator, FAA. In this letter the Secretary of Defense designated Mr. John Klotz and the undersigned as his representatives to discuss with FAA joint R & D/FAA planning methods. These discussions are now scheduled for 2 July 1964. The Air Staff will be consulted in advance and will be kept informed of the results.

FOR THE COMMANDER

PAUL T. PHILLIPS
Major General USAF
DCS/Plans

SUPPORTING DOCUMENT NO. 39

...in the event of a general war, the FAA system would be under the operational control of competent military authority. The FAA's organization and system could provide data on civil resources such as surviving usable airports, fuel reserves, location and type of civil aircraft still remaining, weather, etc. In addition, to providing information on the civil air system, the FAA might give direct support to DOD elements in the form of logistic and maintenance service from within the FAA system. The FAA's capability to provide the mechanism required to generate civil air logistics support in emergency reconstitution actions should be explored. Fourth, it is conceivable that the surviving FAA facilities and personnel could be utilized for emergency manual control of weapons, thus providing a limited backup to the regular air defense command and control system. All of these possibilities must be predicated on the assumption that the FAA system would be under the operational control of competent military authority.

From Comd Secty. Files
13 Oct 64.

D
ADLPC

80912

IOD/TM Planning for Emergency and Wartime Relationships

27 AUG 1964

CINCPAC AD

ADLPC

1. References:

Memorandum from the JCS for the Chairman, Joint Chiefs of Staff, subject same as above, dated 13 Aug 64 (Attached).

ADLPC

Executive Order 11101, dated 7 Jul 64 (Attached).

ADLPC

2. Reference 1.a. above requests the JCS to prepare recommendations on IOD/TM planning for emergency and wartime relationships in response to the requirements stated in Executive Order 11101, dated 7 Jul 64 (Reference 1.b.).

ADLPC

3. The Joint Chiefs of Staff have referred this subject to the Chief of Staff, USAF for comment and recommendations. The Chief of Staff, USAF has identified the predominating joint planning interest to be those functions relating to air defense/air traffic control, and has therefore designated A-10 as the executive agent for developing and submitting the USAF comments and recommendations pertaining to this subject. These comments and recommendations must be submitted to HQ USAF by not later than 22 Sep 64.

4. Recognizing the impact that any recommendations on this subject would have on NOLAD and other commands and services, we are forming a study group to develop the comments and recommendations requested by CCAF and JCS. Accordingly, it would be appreciated if you could provide representatives to the study group for this purpose for the period 3 to 13 Sep. ECS/Plans of this headquarters is OPR.

FOR THE COMMANDER

SUPPORTING DOCUMENT NO. 40

W. B. FINESE
Major General, USAF
Chief of Staff

1 Atch
Ltr USAF (AFXOPYA) 24 Aug 64
DOI-FAA Planning for Emergency
and Wartime Relationships
w/1 Atch

40

JOINT MESSAGEFORM

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FROM: ADC

TO: AFSC

INFO: CSAF

AFLC

RADC GRIFFISS AFB NY

ROAMA GRIFFISS AFB NY

CINCORAD

FAA

WASH DC

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SECRET NORFORN EXCEPT CANADA ADCCR *731*

For General Schriever from General Thatcher. Deliver during normal duty hours. Info Gen Gerrity/USAF, Gen Bradley/AFLC, Col Crabtree/RADC, Gen Root/ROAMA, Gen Gerhart/NORAD, Gen Grant/FAA. (U) AN/FPS-24 and AN/FPS-35 Antenna Bearings. Ref my msg ADCCR 5819, 5 Dec 63 and Gen Shores' msg ADMDC 5396, 25 Oct 63. Both msgs to Gen Gerrity, info all other addressees except FAA.

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Group 4

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MAJ EDWARD T. KERR

PHONE 7256 PAGE NR. 1 NR. OF PAGES 2

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SIGNATURE SUPPORTING DOCUMENT NO. *41*

TYPED (or stamped) NAME AND TITLE
ROBERT H TERRILE
LT GENERAL, USAF
VICE COMMANDER

(41)

JOINT MESSAGEFORM - CONTINUATION SHEET

SECURITY CLASSIFICATION

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FROM:

ADC

This command continues to experience bearing failures on FD search radars. These failures have seriously degraded our capability to support CINCNORAD/FAA mission demands. It is my understanding that the contractor has not been able to meet design specifications for these bearings. I am alarmed at the strong possibility of extended delays in arriving at a permanent solution. I strongly recommend this problem be given the highest priority for resolution. In this respect we will give all possible assistance to achieve desired objectives including the use of radar facilities for test purposes. I would appreciate a run down on the actions you are taking on this problem. GP-4.

SIGNED: COMMANDER, HQ ADC, ENT AFB, COLO

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FROM:

ADC

SPECIAL INSTRUCTIONS

TO:

ROAMA GRIFFISS AFB NY

SECRET ADMME-RONCO 1218

For RONC, Col Roberts. Subj: (U) An/FPS-24/35 Antenna Bearing Problem. Following AFSC msg SCGV 12-3-14 (S) quoted for your info and guidance. "Following is a run down of actions being taken by this command on the AN/FPS-24/35 Antenna Bearing Problem. Seven part msg. Part I. Since the FPS-24 problem developed the subject has been an agenda item for the joint AFLC/AFSC Monthly Commanders Conference. The joint AFLC/AFSC approach to the solution recognized that the problem would continue to exist until the supply of spare bearings could reach a status where replacements can be made as failures occur. The best estimate of a get well date in this respect is Jun or Jul of this year at which time industry production rate can handle the demand. Part II. As you know the

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JOINT MESSAGEFORM - CONTINUATION SHEET

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FROM ADC

Situation has become more critical with the total AN/FPS-35 failures or near failures reaching seven and two additional FPS-24 sites nearing failure based on info from the field. The average hours at failure on the FPS-35 has decreased to 15,500. Part III. The basic cause of the premature bearing failures on AN/FPS-24/35 radars has not been positively determined. Contributory causes which have been identified for the FPS-24 are: Inadequate basic capacity of ball bearing; sliding-scuffing action in four point contact bass bearings; possible mount inaccuracies; possible poor load distribution due to inadequate mount stiffness; lubricant contamination; improper heat treatment. In the FPS-35, mount inaccuracies are the major concern at this time. Corrective action has been taken as follows: Higher capacity roller bearings made of improved materials will be phased into FPS-24's and FPS-35's starting in Jul 64. Other more suitable bearing types will be funded by 416L SPO, and installed in operational radars for evaluation when feasible. Improved filtration will become available for the FPS-24 in about three months. Heat treatment of races has been greatly improved to achieve required characteristics. Measurements have been made at two FPS-24 sites and will eventually be made at all 24 and 35 sites in connection with bearing changes to determine that mount accuracies are adequate. Corrections will be

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JOINT MESSAGEFORM - CONTINUATION SHEET

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FROM

ADC

made where required. A study has been proposed and funds have been approved by AFSC for the determination of adequacy of load distribution in the FPS-24 pedestal. A pedestal at an operational site will be made available by your command for the experimental part of the study.

Part IV. Actions listed will be supplemented as other requirements are determined. It is anticipated that a considerable improvement in life expectancy will result. However, it must be emphasized that no reliable quantitative evaluation is possible short of full scale trial in the field. It will therefore be impossible to determine that a long-term rolling element bearing solution has been achieved until a period of several years has passed. Part V. A permanent solution which involves the development of a new type of hydrostatic bearing for direct replacements on the FPS-24 and 35 has been proposed. The first item for the FPS-24 could be in the field within 18 months after beginning the program and within a matter of weeks demonstration of its success or failure as a permanent solution would be concl according to RADC. One bearing fully developed to operational status, installed and operating in the field would cost approximately \$1 million for the FPS-24 and a similar bearing for the FPS-35 would be obtained for an additional \$650,000. Follow on production cost would be approximately 200K, installed, per

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JOINT MESSAGEFORM - CONTINUATION SHEET

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FROM
ADC

site. Part VI. It was felt that the risk involved, the high cost which would require at least 10 to 14 years to a break even point over mechanical bearing replacements, the long lead time to full replacement and the uncertainty as to the extent of improvement that will be realized after incorporation of the changes outlined in Part III above, did not justify proceeding immediately with development of the new type bearing at this time. Part VII. We are currently analyzing the overall bearing requirements for larger radars in the future. The objective of this analysis is to determine if there is additional justification upon which to re-examine the potential of a new device for future Air Force applications which would support a requirement for development under an advanced development program. GP 4."

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7D Bearings

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FROM:

ADC

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TO:

ROAMA GRIFFISS AFB NY

INFO: CSAF

AFLC

SECRET ADMME-CA 1491

For RONC/ROAMA, info AFSDC/CSAF, MCMTTC and MCOOL/AFLC.

Subj: (U) AN/FPS-35 Bearings. Ref ADMME-CA 118, 10 Jan and ADMME-CA 443, 7 Feb. A four part msg. Part I.

Request you advise status of contractual coverage for preliminary work and installation of new bearing at Boron, or will MDA accomplish all the necessary preliminary work? Further if 1 Aug date remains firm for delivery first production bearing, preliminary work should start by 1 Jul. Part II. Upon completion of Boron, unless other failures occur, Selfridge will have first priority. Part III. 28 Apr Sperry representative advised ADC that analysis of filings indicate impending

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MAJ KERR

PHONE 7256

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TYPED (or stamped) NAME AND TITLE

WILLIAM J. BYRON JR. Lt Col, USAF
Flying Capt, Electronics
Maintenance Division

43

JOINT MESSAGE FORM CONTINUATION SHEET

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FROM:

ADC

failure of bearings at Fallon, Nev; Finley, N.Dak;
 Sault Ste Marie, Mich; Antigo, Wis; and Manassas, Va.
 What is your evaluation of these stations? If Sperry
 analysis is correct, all bearings presently on procure-
 ment will be used leaving zero balance for spares and
 none for Fortuna, N.Dak. We recommend immediate procure-
 ment action to preclude long delays presently being
 experienced waiting for bearing delivery. Part IV. This
 Hq extremely interested in FPS-35 jacking technique.
 Procurement costs would be amortized in two installations
 and radar down time halved. Request you vigorously pursue
 engineering evaluation and procurement of this device.
 GP-4

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AFLC			
CINCINORAD			
SECRET NORFORN EXCEPT CANADA ADMME-CA <i>1888</i>			
For RONC/ROAMA, info AFSDC, AFSMECB/CSAF; 25MME and 25OAC; 26MME and 26OAC; MCMTTC, MCOOL, MCSSES/AFLC; NOOP, NEEC/NORAD. Subj: (U) AN/FPS-24 Antenna Bearings. Ref RONC 339 (S), 2 Jun NOTAL. Pt Arena has been placed in emergency operation status. New priority of repair is established as follows: Port Austin, Mich; Pt Arena, Calif; Winston-Salem, N.C; Oakdale, Pa; and Blaine, Wash			
Request you take action to expedite shipment of measuring grinding instrument, antenna jacks, and antenna bearing			
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CMSGT MUNDT		WILLIAM J. BYRON JR, Lt Col, USAF	
PHONE 7258		Acting Chief, Electronics	
PAGE NR 1		Maintenance Division	
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JOINT MESSAGEFORM - CONTINUATION SHEET

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FROM

ADC

to Pt Arena, utilizing air shipment if necessary, in order that repair can start immediately following completion of Port Austin repair. Due to complete loss of normal FPS-24 coverage on the West Coast, it is requested that most aggressive management and measures possible be taken to insure earliest repair of Pt Arena. GP-4.

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INFO ROUTINE

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2 MAY 66 21 14

FROM: ADC ENT AFB COLO

TO: CSAF

INFO CINCNORAD

NOFORN EXCEPT CANADA

SECRET/ADLPC-A 01536 MAY 66

FOR USAF (AFXOPFN); INFO FOR CINCNORAD (NPSD). Subj:
 (U) USAF Review of Command, Control and Communications
 Program (CSAF Sec Msg AFXOPFN 85958, 29 Apr 66). This
 msg in eight parts. Part I, There are some savings
 that can be realized in the FY 68 program. Therefore,
 Hq ADC has conducted an evaluation and requirements
 analysis of specific items in the air defense ground
 environment where FY 68 funds can be saved or deferred
 without degrading air defense capabilities and identified
 those items which must be retained. Part II, The five
 radars presently programmed for closure in FY 67 but
 proposed for closure in FY 69 must be retained until
 associated FAA radars can provide necessary coverage to
 satisfy NORAD criteria. The contingency associated with

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TYPED NAME AND TITLE
L/C Young/bk
ADLPC-A

PHONE
3263

SIGNATURE

SUPPORTING DOCUMENT NO. 45

TYPED (or stamped) NAME AND TITLE

H. E. PARSONS, Colonel, USAF
Assistant Deputy Chief of Staff, Plans

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these sites was that the FAA radars would be data tied to the air defense system prior to deletion of ADC radars. Some minor reductions can be made at four ADC sites and still retain a weapon control capability comparable to that which will be provided by FAA radars when data tied into the system. The following actions would save 764K and 29 personnel beginning in FY 67, for a total FY 67-68 saving of \$1,528,000 and 29 personnel. A. Discontinue operation of the two height finders and the GATR/TDDL facility at Z-98 Miles City, Montana. B. Discontinue operation of one height finder at Z-43 Guthrie, W.Va; Z-127, Winnemucca, Nevada; and Z-149 Baker, Ore. The FY 68 MCP now includes 750K for construction in support of ADC height finder and radio equipment installation at five FAA sites. These funds are required for the installation of ADC equipments when the FYQ-40 Common Digitizers become available in FY 69. The ADC position on the present ground environment in the 37AD is that this environment provides a significant contribution to the national defense posture and should be retained until an F-12/AWAC force is in being.

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Part III. The approved BUIC III Program consists of 19 BUIC III centers. Z-81 Waverly, Iowa, will become the 20th site on the current BUIC III Master Schedule with a 1 August 1969 operational date. In FY 68, all hardware funds should remain as programmed; and, in addition, .314M in MCP funds are required for construction of the operations building to house the BUIC III equipment. Since six months lead time is required for installation and testing of the BUIC III equipment, the required BOD for the operations building is February 1969. To meet the February 1969 BOD requires twelve months building construction time and the use of FY 68 MCP funds. If the 20th BUIC III is not approved in sufficient time to allow add-on to current approved BUIC III Master Schedule, production costs for this item will increase. Disapproval of 20th BUIC III would require retention of an unsatisfactory manual backup capability to SAGE in this critical area, which ADC considers almost as important as a perimeter area. Part IV. ECCM requirements were established and justified in the ADC Electronic Warfare Study Report submitted to AFRDQ on 30 Dec 65.

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The requirement was further confirmed in 14 Jan 66 ltr from General Thatcher to General McConnell, and 28 Jan 66 ltr from General Blanchard to General Thatcher. Active air defense will be severely crippled in the Soviet ECM environment postulated for this time period. Existing passive detection and tracking capability is totally inadequate and must be improved. The \$10.9 million in the FY 68 program for this improvement package must be retained. Part V. The installation of AN/FPS-27 FD radars at Z-44 and Z-179 to replace AN/FPS-7 radars presently installed is considered less critical than other suggested reductions. The 2.5M for this program can be deferred from FY 68 to FY 69 MCP. In addition, 354K (P-437 GEEIA funds) for installation of this equipment can be deferred. Part VI. The 5.7M required for the hydrostatic bearings in FY 68 can be deferred until FY 69. Part VII. The northeast commercial power failure of 9 Nov 65 revealed a weakness in the air defense system stemming from the slow recovery of radar coverage following a massive power failure. Recovery times ranged from 53 minutes to 8 hours and

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15 minutes. A power failure or power fluctuation seriously affects the radar electronic equipment. The minimum recycling time, assuming no component failures, is 30 minutes after restoration of power. A power failure is usually preceded by voltage fluctuations and/or frequency changes. These changes in electrical characteristics, as well as the sudden drop in power, often result in the failure of electronic components such as resistors, relays, etc, in the radar sets. The time between restoration of power and operational capability of the radar, therefore, extends from a minimum of 30 minutes to many hours. A nationwide power failure would affect 93 radar sites. In view of this, the \$5.7M for prime and electrical emergency power must be retained in the FY 68 program. Part VIII. It should not be overlooked that over \$3.0M of civilian pay is additive to radars in FY 68 due to transfers from and dollar reductions in combat centers, direction centers, and other program elements. Approximately \$13.0M of the proposed \$19.5M increase applies to this command. The remaining difference of

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approximately \$6.5M consists of construction projects
in the Alaskan Air Command (AAC). \$10.0M can be saved
or deferred, as outlined above. GP 4.

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