

[4/14/78-Not Submitted] [CF, O/A 548]

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THE WHITE HOUSE
WASHINGTON

4/14

Dead - per

Bob Thompson.

Nothing to be
issued.

ID 781527

THE WHITE HOUSE
WASHINGTON

*New delay
can't do it
for me*

*change routing
letter to Mondale*

*Trans 4/11 4/6-7
from NSE
Wright*

DATE: 21 MAR 78

FOR ACTION:

*do these
do joint are who
- MCM*

*2A + 2B
only comment*

INFO ONLY: STU EIZENSTAT
ZBIG BRZEZINSKI

*(nothing
in)*

FRANK MOORE

Jack Watson
NC

*attached problems to see
- attached problems to see
- attached problems to see*

SUBJECT: EXTREMELY LOW FREQUENCY (ELF) COMMUNICATIONS

*Bob Thompson: will comment
- a letter also needs
to be sent to Senator
Hegler
will draft
letter to be
done Mon 4/3*

+ RESPONSE DUE TO RICK HUTCHESON STAFF SECRETARY (456-7052) +
+ BY: +

ACTION REQUESTED:

STAFF RESPONSE: () I CONCUR. () NO COMMENT. () HOLD.

PLEASE NOTE OTHER COMMENTS BELOW:

THE WHITE HOUSE
WASHINGTON

*Admin
copy of*

<input checked="" type="checkbox"/>	FOR STAFFING
<input checked="" type="checkbox"/>	FOR INFORMATION
<input type="checkbox"/>	FROM PRESIDENT'S OUTBOX
<input type="checkbox"/>	LOG IN/TO PRESIDENT TODAY
<input type="checkbox"/>	IMMEDIATE TURNAROUND

ACTION	FYI	
		MONDALE
		COSTANZA
		EIZENSTAT
		JORDAN
		LIPSHUTZ
		MOORE
		POWELL
		WATSON
		McINTYRE
		SCHULTZE

*have
letters
typed*

	ENROLLED BILL
	AGENCY REPORT
	CAB DECISION
	EXECUTIVE ORDER
	Comments due to Carp/Huron within 48 hours; due to Staff Secretary next day

	ARAGON
	BOURNE
	BRZEZINSKI
	BUTLER
	CARP
	H. CARTER
	CLOUGH
	FALLOWS <i>with letter</i>
	FIRST LADY
	HARDEN
	HUTCHESON
	JAGODA
	GAMMILL

	KRAFT
	LINDER
	MITCHELL
	MOE
	PETERSON
	PETTIGREW
	POSTON
	PRESS
	SCHLESINGER
	SCHNEIDERS
	STRAUSS
	VOORDE
	WARREN

1527
MAR 21 1978

THE SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301

MAR 18 1978

MEMORANDUM FOR THE PRESIDENT

SUBJECT: Extremely Low Frequency (ELF) Communications

As you directed, we have taken action to cancel Project SEAFARER, the large 2400-mile ELF antenna network. Because it is essential for us to establish an ELF communications capability, I have directed the Secretary of the Navy to proceed with a small and austere operational ELF system. This system has been described to you and would use K. I. Sawyer Air Force Base in Michigan connected with the ELF test facility in Wisconsin. The members of our staff and the Secretary of the Navy are explaining the need and system characteristics to public officials and residents of Michigan and Wisconsin. We shall continue to keep you advised.

As you requested, I have enclosed a report of the studies of alternative sites for antenna lines. Also enclosed are letters for you to send to Tip O'Neill and the Vice President asking Congressional support during the budgetary review.

Enclosures



DEPUTY

THE WHITE HOUSE
Washington, D.C.

The Honorable Thomas P. O'Neill, Jr.
Speaker of the House of Representatives
Washington, D.C. 20510

Since before taking office, I have had reservations regarding Project SEAFARER, the large 2400 mile extremely low frequency (ELF) antenna network proposed by the Navy for installation in Michigan's Upper Peninsula and have directed the Secretary of Defense to cancel the project.

I am, nevertheless, persuaded that we have an urgent need to provide our submarines with a communications capability that frees them from dependence upon surface or near surface message reception. I concur with an assessment by the Secretary of Defense that such a capability is vital if our ballistic missile submarines are to remain undetectable and thus are to serve as a viable strategic deterrent, which is of course essential to our national security. His analysis, reinforced by independent assessment by members of my own staff, indicates that there is no alternative to the medium of Extremely Low Frequency (ELF) for accomplishing this capability within a reasonable period of time.

Further analysis has indicated that the least cost and smallest impact of such a facility would be obtained by construction of a small transmitting network centered on K. I. Sawyer Air Force Base in Michigan, to be connected with the existing test facility in Wisconsin, which facility would be upgraded but not otherwise significantly altered. It is my understanding that the proposed facility in Michigan would involve approximately 5 percent

of the amount of buried antenna lines that were proposed for Project SEAFARER and that almost all of this could be located on existing rights of way, and that no future enlargement of this system would be necessary.

The FY 79 budget provides the funds necessary for the Secretary of Defense to proceed in consonance with my decision. While the total cost is less than that of Project SEAFARER there will be some budget realignment required to reflect the development of this small austere ELF capability. I request your support for development of this vital ELF communications capability.

ENCL 1

Extremely Low Frequency (ELF) Communications System Site Review

In response to Presidential memorandum of February 16, 1978, a review of alternative locations for an ELF system has been prepared and is forwarded herein.

The dominant influence in a comparison of ELF Communication Site alternatives is the measure of earth conductivity in the specified area. The Laurentian Shield area, which includes parts of Upper Wisconsin and the Upper Peninsula of Michigan, offers the lowest available effective deep earth conductivity area in the United States. Lower conductivity permits use of less power, smaller antenna lengths, greater spacing between individual antenna lines, and, consequently, less cost and less environmental disturbance for any specified communication performance standard (data rate or area coverage for reception).

The Department of Defense decision action which directed the preparation of environmental impact assessments for the SEAFARER system at sites in Nevada, New Mexico and in the Laurentian Shield area of the Upper Peninsula of Michigan resulted from a 1975 survey of twelve potential candidate sites. Low conductivity areas in New Hampshire, New York, Virginia, North Carolina, and Georgia examined in surveys conducted in the early 70's were judged less favorable sites for reasons of limited usable area, rugged terrain, and population density and were eliminated from consideration. Population density was a consideration not so much from the standpoint of environmental aspects (since the system would not be proposed if it impacted adversely) but because that factor impacted on the degree of interference mitigation, hence cost, which would be required with the increased number of telephones and electrical circuits in these areas. A 17-element mathematical model was developed and utilized to scale the major environmental, construction, and cost factors in each of the twelve candidate site areas to a standard index for comparison.

The Michigan site represented a system located in an optimum area of low conductivity while the Nevada and New Mexico areas represented sites where the system could be located on federally occupied land, Nellis Air Force Base and White Sands Missile Range respectively, to reduce its impact on private individuals.

The subsequent analysis after completion of the detailed environmental impact studies demonstrated the effect of conductivity on system size and cost. Installation of the large sized systems on the federally

occupied sites in Nevada and New Mexico would cause a major disruption in their current activities and would create a significant amount of civilian unemployment, with a negative economic impact in these areas. Tab A is a comparison of the three sites addressed in the Environmental Impact Statement which summarizes the implication of installing a small SEAFARER system in each of these areas.

Tab B contains a table prepared to summarize the major characteristics of the twelve site areas previously examined. It includes a relative cost index value for each of the sites. The cost and performance data obtained from the environmental impact studies for the final three site areas have been applied to the other nine areas utilizing the relative cost index to produce a cost value comparison for all areas.

The Michigan-Wisconsin alternative represents the smallest amount of new antenna construction for all site areas and the least deforestation or impingement on private lands. In the proposed combination system, location of one transmitter and its control center on K.I. Sawyer AFB takes advantage of existing security and personnel facilities. The additional transmitter in Wisconsin provides increased system reliability and operational flexibility for maintenance or casualty situations, i.e., continuous but reduced power operation could permit uninterrupted connectivity with submarines while trouble-shooting at either site. An installation in Michigan alone capable of equivalent radiated power is possible by expanding the antenna length to 220 miles vice 130. An equal Wisconsin alternative could be attained by adding 167 new miles of antenna to the existing 28 mile system.

The Wisconsin or Michigan sites represent acceptable alternatives. Antenna implantation in areas other than those included in the Final Environmental Impact Statement would necessitate submission of additional environmental impact statements. This in turn would require detailed studies of each specific alternative location with corresponding schedule delays and associated costs.

FOR OFFICIAL USE ONLY

BASE 1977 - 1978 EQUAL CAPABILITY ELF SYSTEM FEATURES

22 February 1978

	<u>MICHIGAN/WISCONSIN</u>	<u>NELLIS AFR (NEVADA)</u>	<u>WHITE SANDS MR (NEW MEXICO)</u>
CONDUCTIVITY (10 ⁻³ Mho/Meter)	0.40/0.32	27	48
ANTENNA INSTALLATION METHOD	83% PLOW	65% PLOW	67% PLOW
COMMERCIAL POWER REQUIRED (Megawatts)	1.5/1.5	19	24
TOTAL ANTENNA LENGTH (Miles)	130/28 (EXISTING)	1820	2325
ANTENNA LINE SPACING (MILES)	3.7	1	1
SHORE FACILITY } Acquisition and RECEIVERS } Development	95M 125M	294M 125M	377M 125M
O&M TO COMPLETION OF SYSTEM	12M	15M	15M
ESCALATION	51M	167M	210M
TOTAL SYSTEM ACQUISITION COST	283M	601M	727M
O&M/Year for Completed System (FY 84)	8.5M	9.2M	13.3M
ENVIRONMENTAL CONSIDERATIONS	<ul style="list-style-type: none"> • Short Term Disruption Same As Buried Utility Cable Installation • Least New Antenna Required 	<ul style="list-style-type: none"> • Interrupt Aircrew Training During Construction • Short Term And Long Term Negative Economic Impact If Air Force Relocates To Other Ranges • Foreclose Development Of Air Force Realistic Threat Environment 	<ul style="list-style-type: none"> • Major Negative Economic Impact Short and Long Term • Construction Impact Equivalent To Range Shutdown 1 Year • Operational Electro-magnetic Interference Risk

TAB A

SMALL ELF ALTERNATIVES

22 February 1978

<u>Geographic Area</u>	<u>Conductivity (10⁻³ Mho/Meter)</u>	<u>Total Area/ Usable Area (Sq. Miles)</u>	<u>Antenna Installation Method</u>	<u>Land Owner*</u>	<u>Commercial Power Req'd (MW)</u>	<u>Equal Capability Antenna Sys (Miles)</u>	<u>Relative Transmitting System Costs</u>
Michigan/Wisconsin	0.40/0.32	---	83% Plow	P,SF,NF	3.0	additional 130	1.0
Wisconsin	0.32	6,300/5,390	69% Plow	P,NF	3.0	195	1.0
Michigan	0.40	7,280/2,700	83% Plow	P,SF	3.0	220	1.0
Colorado	0.81	12,670/3,000	73% Drill/Blast	P,NF	4.0	310	1.5
Wyoming	0.88	5,680/1,160	58% Drill/Blast	P,NF	4.5	325	1.5
Texas	1.3	3,560/3,140	57% Rip; 43% Drill/Blast	P	5.0	390	2.0
Idaho	5.1	5,270/3,280	65% Drill/Blast	P,F	9.0	785	4.2
Arizona (National Forest)	6.0	3,760/2,640	72% Drill/Blast	P,NF	9.5	850	3.7
California (China Lake/Ft. Irwin)	19.0	2,620/1,530	52% Plow	F	16.0	1,510	4.8
Arizona (Luke/Yuma)	22.0	5,820/4,500	74% Plow	F	17.0	1,625	3.2
Nevada (Nellis/NTS)	27.0	7,300/2,900	65% Plow	F	19.0	1,820	2.9
New Mexico (White Sands/Ft. Bliss)	48.0	5,000/4,130	67% Plow	P,F	24.0	2,325	4.6
Utah (Hill/Wendover/Dugway)	365.0	4,110/3,720	96% Plow	F	67.0	6,620	13.1

(1) System would provide capability for short messages to Arctic and Atlantic plus most of Mediterranean and Pacific.

(2) All parameters are calculated to give each site the same transmission capability as defined by the Navy in their recommended system.

*LEGEND: F Federal P Private
NF National Forest SF State Forest

TAB B

ENCL 2

THE WHITE HOUSE
Washington, D.C.

Walker from 10/12/62
The Honorable James O. Eastland, Jr.
President Pro Tempore of the Senate
Washington, D.C. 20510

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THE WHITE HOUSE

WASHINGTON

April 4, 1978

MEMORANDUM TO RICK HUTCHESON

FROM:

FRANK MOORE
BOB THOMSON

F.M./BR
Bob

SUBJECT:

COMMENTS ON ELF MEMO

1. To Michigan residents, the term "Project SEAFARER" encompasses all three of the antenna network alternatives presented, including the one called "Project ELF" in this memo. To Michiganders, the declaration that we are "cancelling Project SEAFARER" and going ahead with ELF sounds like a deliberate attempt to confuse the issue. We should avoid playing word games with these technical terms. Instead, we should openly state that 3 antenna network alternatives were considered and the one least harmful to the environment was chosen.

2. The Congressional delegation, particularly Senator Riegle, should be informed before letters of this nature go to the House and Senate leadership. Riegle is coming around on this issue, but we could incur his wrath by not keeping him informed of every major step in the proceedings. Defense should draft a letter to the delegation or make contacts by telephone. We are not aware that any of the delegation has been definitely told we are proceeding with the third alternative in the upper peninsula. This must be done before the letters are sent to the leadership.