

1070-  
~~9716~~

UNITED STATES GENERAL ACCOUNTING OFFICE  
Washington, D.C. 20548



109021

FOR RELEASE ON DELIVERY  
Expected at 8:00 a.m.  
Thursday, April 5, 1979

STATEMENT OF  
JEROME H. STOLAROW, DIRECTOR  
PROCUREMENT AND SYSTEMS ACQUISITION DIVISION

BEFORE THE

SENATE ARMED SERVICES COMMITTEE  
RESEARCH AND DEVELOPMENT SUBCOMMITTEE

*Sen 00508*

ON

THE [NAVY'S STRATEGIC COMMUNICATIONS SYSTEM]

Mr. Chairman and Members of the Committee:

We are pleased to appear here today to discuss some key aspects of our recently completed work on the Navy's strategic communications systems--in particular, the peacetime systems, wartime systems, and the proposed extremely low frequency (ELF) system.

Our efforts were very comprehensive, and the conclusions can be categorized into three areas as follows:

- Current peacetime systems provide reliable day-to-day communications to the strategic submarine force.

*004862*  
*109021*

--The Navy's most survivable wartime communications link to our strategic submarines--the TACAMO aircraft--has certain problems which need attention.

--There is a substantial question as to whether the Navy needs another peacetime communications system--the extremely low frequency system.

I will discuss separately each of these subject areas, after which I will summarize GAO's recommendations, both to the Secretary of Defense and to the Congress.

#### PEACETIME SYSTEMS RELIABLE

To meet the objectives of the strategic submarine force, the Navy must maintain positive command and control. During peacetime, the Navy uses a combination of communications systems, ranging from very low frequency to ultrahigh frequency, to communicate with the submarines. The Navy's own evaluation shows that the Navy effectively communicates with its strategic submarines nearly 100 percent of the time via the network of available transmission sites throughout the world.

#### WARTIME SYSTEM NEEDS SUPPORT

The Navy maintains two squadrons of TACAMO aircraft (an airborne, very low frequency communications system) for communications with strategic submarines during an emergency. This system, because of its airborne status in the Atlantic, is considered to be the only highly survivable link to the strategic submarine force.

Although the TACAMO communications system is considered the only reliable means of communicating to submarines in wartime, the Navy has allowed the TACAMO fleet to decline in number and deteriorate in physical condition. Because no other communications systems are considered able to outperform TACAMO in delivering emergency action messages, the Navy must now take actions to upgrade TACAMO. Such actions include:

--A \$22 million Service Life Extension Program for the aging aircraft.

--The procurement, for about \$380 million, of new TACAMO aircraft to replace those whose service life will end in the early- to mid-1980s.

We believe the Navy's planned actions constitute feasible near-term solutions to achieving the objective of delivering emergency action messages to the strategic force.

The previously referred to peacetime systems are also available. Separately, they are not considered survivable during a nuclear war but, because of their quantity, some could survive. This coupled with TACAMO aircraft increases the probability that an emergency action message can be delivered to the strategic submarine force.

QUESTIONABLE NEED FOR ANOTHER  
PEACETIME SYSTEM

Although the Navy has day-to-day, reliable peacetime communications to the strategic submarine force, it considers

current communications methods limited and, thus, endangering force survivability. Available DOD data does not support that position, however.

The Navy believes that visually detectable appendages to the submarine, such as a towed buoy or buoyant cable/floating wire antenna, are undesirable because they could help an enemy locate the submarine. The Navy has sponsored research on various alternative communications systems that penetrate ocean water to greater depths, allowing the submarine to remain deep and eliminate the need for antennas on or near the surface. The Navy has had the most success in researching systems that can penetrate ocean waters with an extremely low frequency communications system. At least five variations of the system (referred to variably as Sanguine, Seafarer, etc.), each generally having less capability than the preceding version have been considered, and over \$115 million has been spent on extremely low frequency research and testing.

The foreseeable need for an extremely low frequency communications system is questionable in GAO's opinion, because:

- of the extensive duplication and reliability of existing systems;
- there is a high likelihood that submarine antennas and other receiving systems will

not be detected and, therefore, will not endanger the strategic submarines;

- strategic submarines are extremely survivable now and will continue to be survivable for the foreseeable future;
- of the limited applicability of the extremely low frequency system to attack submarine missions and operations; and
- there is a lack of compatibility between the extremely low frequency system design specifications and strategic and attack submarine operational requirements.

Further, the proposed modified extremely low frequency system is no more survivable than existing day-to-day communications systems. Finally, although GAO does not believe the proposed extremely low frequency system is needed, there is doubt that the system will work as planned even if it is needed.

#### AGENCY COMMENTS AND EVALUATION

DOD, in commenting on our proposed report, concurred with our general comments on Navy strategic communications requirements. Defense recognized and agreed with the problems GAO identified with the TACAMO system and affirmed that planned and ongoing Navy actions are in consonance with the GAO findings. DOD did not concur with the portion of the proposed report which addressed the extremely low frequency

communications system. In essence, DOD maintained that the extremely low frequency system was needed to free strategic submarines from having an antenna at or near the ocean surface and that the technical feasibility of the extremely low frequency system was validated and the system would work as planned. GAO does not agree with DOD on either of these issues.

Information obtained from the Navy and DOD intelligence activities during our review indicates that:

- Strategic submarines are extremely survivable now and will continue to be survivable for the foreseeable future and will be even more so with the deployment of the Trident submarine.
- Submarine antennas and buoys do not endanger strategic submarines now or in the foreseeable future.
- The ability of the extremely low frequency system to perform in a realistic strategic submarine operational environment is questionable and the lack of definitive operational requirements makes it nearly impossible to address the extremely low frequency system's operational utility from a technical standpoint with any reasonable degree of confidence.

The variances in the positions taken by DOD and GAO are elaborated on with more specificity in GAO's classified report.

RECOMMENDATIONS TO THE SECRETARY OF DEFENSE

GAO recommended that the Secretary of Defense terminate any plans to construct an extremely low frequency system transmitter and to install extremely low frequency system receivers on strategic submarines, since the extremely low frequency communications system is not needed; enhances communications capability only marginally at best; and, at a price of \$283 million, cannot be justified. However, GAO recognizes that at some future time (probably not sooner than 10 to 12 years from now) circumstances or conditions related to strategic submarine survivability could change and that a clear need for an improved communications capability could be demonstrated. Accordingly, GAO believes that some level of research on the extremely low frequency system should continue in view of the potential this technology offers.

*Re current circumstances, could be justified.*

RECOMMENDATION TO THE CONGRESS

The President's fiscal year 1980 budget package, submitted to the Congress in January 1979, only included about \$13 million for continuing research and development of the extremely low frequency system. ~~GAO does not believe the Congress should~~

*not* consider funding any full-scale system development or construction until the Navy specifies definitive communications goals and requirements, <sup>and</sup> demonstrates a clear need for such a system, <sup>*It should be shown that*</sup> ~~and shows that~~ the proposed system <sup>*would*</sup> contribute to strategic submarine survivability and flexibility beyond what already exists, ~~and conducts~~ a detailed analysis of the extremely low frequency system's capability compared to strategic submarine's operational environments and documents the results of the analysis. <sup>*should be conducted*</sup>