STATEMENT

OF

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OF THE

DEPARTMENT OF TRANSPORTATION

AT THE

BRIEFING ON MARITIME SATELLITE COMMUNICATION SYSTEMS

BEFORE THE

MERCHANT MARINE AND FISHERIES COMMITTEE
U.S. HOUSE OF REPRESENTATIVES

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Mr. Chairman and Members of the Committee

My name is Harold E. Shear, and I am the Maritime Administrator of the Department of Transportation. I am very pleased to join with representatives of the U.S. Navy, U.S. Coast Guard, the National Aeronautics & Space Administration, and the Communication Satellite Corporation in a briefing of the Committee on certain maritime satellite communications systems. I am accompanied this afternoon by Mr. Ronald K. Kiss, Acting Associate Administrator for Shipbuilding and Ship Operations, and Mr. Carl Mathews, Program Manager in the Office of Research and Development.

The Maritime Administration has been requested to comment on three specific elements of such maritime satellite communication systems: National Defense Feature Communication Equipment, SAMSARS, and USMER. As you know, such National Defense Feature Communication Equipment pertains to current authority to upgrade merchant vessels so that they can effectively communicate with U.S. Navy vessels and shore stations. SAMSARS is an acronym for Satellite Aided Maritime Search and Rescue System. This system is based on the concept that an Emergency Position Indicating Radio Beacon (EPIRB) can be designed to float free of a sinking vessel and give its position via a satellite link. Finally, USMER is an acronym for the U.S. Merchant Vessel Locator Filing System. This mandatory merchant vessel reporting system is operated by the Maritime Administration so that such vessels can be readily called-up for use by the military in times of national emergency.

NATIONAL DEFENSE FEATURE COMMUNICATION EQUIPMENT

Privately owned U.S.-flag merchant vessels perform a variety of functions for the military, both in peacetime and during periods of national emergency. The U.S.-flag merchant marine is quite correctly referred to as the fourth arm of defense.

In order to function effectively in this capacity, U.S.-flag merchant vessels must have reliable radio communications with the military. Such radio communications has not always been possible as our merchant vessels are not equipped with the more expensive, sophisticated equipment employed by the U.S. Navy.

In response to this situation, in my capacity of Vice Chief of Naval Operations, in 1976 I convened a Navy/Merchant Ship Communications Working Group to study the problems in communications between merchant ships and naval vessels and to recommend actions to improve the situation. The Working Group proposed satellite communications as the ultimate goal with some continued dependence on improved high frequency radio teletype.

Responding to this proposal in 1977, the U.S. Navy began specifying certain communications equipment as National Defense Features (NDF) on ships constructed with Construction-Differential Subsidy under Title V of the Merchant Marine Act, 1936. A National Defense Feature is a capability added to a merchant ship in excess of normal commercial requirements. These features are suggested by the Secretary of the Navy to enhance the suitability of merchant ships for service as Navy or military auxiliaries in time of war or national emergency.

With respect to retrofitting existing U.S.-flag merchant vessels with such communications equipment, the enactment of P.L. 96-387 in October, 1980, as amended by P.L. 97-31, authorized the Secretary of Transportation to pay for such NDF.

The NDF Communications equipment proposed for this program might consist of the following:

Two high frequency receivers with synthesized tuning over the frequency range of 2-30 MH_Z.

One high frequency transmitter with synthesized frequency control covering the range of 2-30 MH_Z, a power capability of 1000 watts, and emission control for single sideband voice, radiotelegraphy and radioteletype transmissions.

One radioteletype terminal with error correction, commonly known as Simplex Teletype Over Radio (SITOR) or Automated Request for Repeat (ARQ).

One digital selective calling terminal (SELCALL)

One satellite communications terminal known as MARISAT, which will be absorbed into the International Maritime Satellite (INMARSAT) System in February, 1982.

This communications equipment would give the U.S.-flag merchant marine the capability to communicate with the U.S. Navy throughout the world.

The total purchase and installation costs for this communications package are expected to be in the range of $150,000. Some U.S.-flag merchant ships already have portions of the NDF equipment. Thirty-three ships are equipped with both MARISAT and radioteletype. Twenty-three ships have only radioteletype, while 68 additional U.S.-flag ships are equipped with only MARISAT.

SAMSARS

The advent of satellite communications for ships presents the opportunity to use this capability for automated distress signalling. Communication satellites provide wide area coverage and clear transmissions which makes them ideally suited to handle calls for help from distressed vessels on the high seas. For vessels not equipped with a standard satellite communications terminal, a self-contained transmitting unit, called an EPIRB for Emergency Position Indicating Radio Beacon, could be released over the side of a sinking ship or float free and automatically send a distress message via satellite to shore rescue stations. During the deliberations of the Preparatory Committee for INMARSAT in 1977, the Maritime Administration and the Coast Guard initiated a cooperative development and testing program for a Satellite Aided Search and Rescue System (SAMSARS). A preliminary test of SAMSARS was successfully conducted through the Pacific Ocean MARISAT satellite in the Fall of 1979.

The Intergovernmental Maritime Consultative Organization (IMCO) in 1979 asked the International Radio Consultative Committee (CCIR) to consider EPIRB approaches and recommend alternatives for a future system selection. To this end, the CCIR has instituted an International Coordinated Trials Program to take place in the 1982-84 time frame. During an initial planning session the U.K. suggested that cooperation between agencies of the U.S. and U.K. could reduce respective governmental cost for participation in the

trials. A preliminary discussion between representatives of the U.S. and the U.K. was held in London in October 1980. A tentative framework for agreement was formulated. This framework included U.K. development and provision of an EPIRB transmitter, and U.S. development and provision of a shore receiver and processor.

A formal agreement was concluded on July 23, 1981. The agreement provides that each administration is responsible for its own costs and imposes no financial obligation on either arising from expenditure of the other.

USMER

Finally, Mr. Chairman, you have requested that we comment on USMER. As I mentioned at the beginning of my statement, USMER is an acronym for the U.S. Merchant Vessel Locator Filing System. At the request of the Department of Defense, this mandatory system was established by the Maritime Administration on November 1, 1975. It is designed to provide current information on the position of U.S.-flag merchant vessels and certain other vessels so that such ships may be called up for support of military operations in an orderly manner during periods of national emergency.

Pursuant to section 902 of the Merchant Marine Act, 1936, any vessel of the United States may be requisitioned by the Maritime Administration for the use of the Department of Defense, if the President of the United States proclaims that the security of the

national defense makes it advisable, or alternatively during any national emergency declared by proclamation of the President. Additionally, certain foreign-flag vessels, for which we have issued War Risk Insurance binders under Title XII of the Merchant Marine Act, 1936, are subject to a contractual commitment to respond if called upon during a national emergency.

The function of USMER is to provide the position of these vessels at all times. National defense plans assume that in a period of crisis, military forces might be ordered to deploy to a foreign area with little or no warning. Should this occur, unit equipment cargo, ammunition, and resupply cargo would be ready at loading ports within a few days. The information provided by USMER would enable the Maritime Administration to identify ships of the required types and sizes that could be requisitioned, made ready for loading, and put on berth by the required loading dates. At the same time that we are requisitioning vessels for the use of the military, USMER would provide us with the information necessary to notify the owners of vessels not then required to continue with commercial operations.

The continuing ship plot provided by USMER must be maintained at all times if this information is to be immediately available when needed. Without this information, the Maritime Administration would have to rely on the operating companies who, in many cases, do not possess accurate information. Without accurate information, days could be required to establish an adequate ship plot. Ship

marshalling without a plot would be on a catch as catch can basis, with no possibility of selecting the most suitable ships or the ships that could be made available most efficiently.

The basic data for USMER is provided by the vessels involved. Pursuant to the authority set forth in sections 212(A) and 1203(a) of the Merchant Marine Act, 1936, the Maritime Administration requires all U.S.-flag vessels of 1,000 gross tons and over engaged in the foreign commerce of the United States, and certain foreign-flag vessels for which War Risk Insurance binders have been issued, to file USMER reports by radio message. These reports cover arrival and departure at foreign ports, arrival at the first port of call in the United States, and departure from the last port of call in the United States. Departure reports include the route to be followed and arrival reports close out a particular voyage. When the vessel is at sea, it must report every 48 hours, beginning at noon of the second day following departure from port. The at-sea reports include the time of reported position, latitude, longitude, course, and speed.

These position reports are transmitted by radio, free of charge, from the vessel to shore stations operated by the U.S. Coast Guard or the U.S. Navy. These stations then enter the reporting messages in the Department of Defense communications system, which distributes the information to the Naval Ocean Surveillance Information Center (NOSIC), the U.S. Coast Guard AMVER Center, and other addressees, including the Maritime Administration.

Installation of NDF communications equipment would improve the capability of U.S.-flag merchant ships to transmit USMER messages to the U.S. Navy, U.S. Coast Guard and the Maritime Administration. In fact, we have seen improvement in USMER reporting from ships that have all or part of the equipment installed.

The information from these required position reports is then programmed into two separate computers. It is programmed by the U.S. Navy into the NOSIC computer for use in the USMER Program. In times of national emergency, the Maritime Administration would use the position information provided by the NOSIC computer to call up merchant vessels required by the military. The information from these required position reports is also programmed by the U.S. Coast Guard into their AMVER computer program.

Mr. Chairman. At this time it might be helpful to point out the difference between USMER and AMVER. Currently, they are two distinct reporting systems that are carried out for different purposes. Search and rescue operations are a responsibility of the U.S. Coast Guard. AMVER, an acronym for Automated Mutual-Assistance Vessel Rescue System, is a voluntary system operated by the U.S. Coast Guard to aid in such search and rescue operations. Any nation may participate in the AMVER system.

Admiral John B. Hayes, Commandant of the U.S. Coast Guard, has approached me about the merger of the present USMER and AMVER systems, with the object of making AMVER a mandatory program for U.S.-flag vessels. I concur with his recommendation and have suggested that a three-man working group be established, consisting

of representatives of the U.S. Coast Guard, the U.S. Navy and the Maritime Administration to oversee the development of the consolidated system. The U.S. Navy must be a party to any change in USMER since they originally requested the Maritime Administration to develop USMER for national security purposes.

Mr. Chairman and Members of the Committee. That concludes my prepared briefing statement. My colleagues and I will be pleased to answer any questions that you may have. Thank you.