STATEMENT FOR THE RECORD OF

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OVERSIGHT HEARING ON ANTARCTICA

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ANTARCTIC ICE OPERATION

The U.S. icebreaker fleet has been instrumental in building and supporting the nation's presence in both polar regions, including support of scientific missions in Antarctica. The major missions to which icebreakers have been and are assigned in the Antarctic are:

> Resupply of NSF research stations, including McMurdo ice channel break-in and ice escort for other support vessels; support (as either the primary platform or ice escort) for the U.S. Antarctic Research Program; and support platform for U.S. inspection of research stations of other nations.

The United States has political, strategic, environmental, scientific and resource interests in Antarctica. The paramount interest for the U.S. is to maintain Antarctica as an area of peace and cooperation. Environmental and scientific interests are dictated by the desire to preserve the unique ecological systems of the continent and by the value of Antarctica as a laboratory for the study of natural processes. Resource interests are currently hypothetical, but it is important to continue to ensure non-discriminatory access for the United States.

The vehicle through which the U.S. has pursued these interests is the Antarctic Treaty of 1959. The success of the Antarctic Treaty system to date in maintaining peace and cooperation has been largely due to the leadership of the United States. The basis of this leadership role has been the nature and extent of the U.S. operations in Antarctica and the commitment of the U.S. to the practical realization of the principles and purposes of the Treaty system. The U.S. program, managed by the National Science Foundation, includes the conduct of scientific activities in major disciplines, year-round occupation of the South Pole and two coastal stations, and availability of related logistics support.

A key element of the U.S. presence in Antarctica has been and will continue to be the availability of icebreaker support to open supply channels to coastal stations and perform a variety of other functions during the austral summer season (November through early April).

Growing Third World interest in Antarctica has been manifested by United Nations General Assembly debate and a resolution directing the Secretary General to prepare a "comprehensive, factual and objective" study on Antarctica. Malaysia, which took the lead in raising the issue of Antarctica, has made clear that the goal is to open up the "secret club" of the Antarctic Treaty and ultimately to declare the resources of Antarctica to be the "common heritage of mankind". The Antarctic Treaty Consultative Parties, including the United States, have defended the Antarctic Treaty system and opposed the "common heritage" concept, while emphasizing that the Treaty system is an open one. The Consultative Parties are also engaged in negotiating a new agreement to cover possible future mineral resource activities in Antarctica, which if unregulated could upset the balance between territorial claimants and non-claimants established by the Antarctic Treaty.

In view of these new challenges, a firm United States presence in Antarctica is even more important. President Reagan in 1982 reaffirmed the policy that "the United States Antarctic Program shall be maintained at a level providing for an active and influential presence in Antarctica designed to support the range of U.S. Antarctic interests." That presence will continue to include icebreaker support as a vital element.

AUTHORITY

Coast Guard authority to conduct polar ice breaking is contained in several sources -- statutory law, administrative regulations, interagency agreements and international treaties. The basic authority for ice breaking is 14 USC 2:

> "The Coast Guard shall develop, maintain and operate, with due regard to the requirements of national defense, aids to navigation, ice-breaking facilities, and rescue facilities for the promotion of safety on and over the high seas and waters subject to the jurisdiction of the United States ..."

The major source granting the Coast Guard responsibility for the U.S. icebreaker fleet is the "Revised Memorandum of Agreement between the Department of the Navy and the Department of the Treasury on the Operation of Icebreakers", dated 22 July 1965. This agreement provides for the transfer of all U.S. icebreakers to the Coast Guard.

NSF has been assigned the single-agency responsibility to fund and manage the U.S. national program in Antarctica, including research and logistic support. Basic research in Antarctica is entirely coordinated and, with minor exceptions, funded by NSF.

The 1965 Navy-Treasury MOA was executed to permit consolidation of the icebreaker fleet under one agency. That rationale was reinforced by the 1982 Roles and Missions Study which states polar icebreakers should be centrally managed by one agency and that the Coast Guard is the appropriate one due to the multi-mission nature of polar ice operations.

Subsequently, as the agency responsible for operating, crewing, and maintaining the nation's icebreaker fleet, the Coast Guard is tasked by the MOA with "(assigning) icebreakers to Navy operational control for seasonal deployments to the Arctic and Antarctic in support of the national interests."

> The MOA further states ".... (participating) to the extent practical in polar scientific programs sponsored by the Navy, the Coast Guard, the National Science Foundation and other federal and private agencies having approved scientific missions requiring icebreaker services", and "... providing logistics support of (U.S.) Antarctic bases and the inspection provisions of the Antarctic Treaty."
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> The agreement also calls on the Coast Guard "to replace icebreakers in its inventory with ships of appropriate size and power to meet the very heavy ice conditions in the Antarctic and the potential military needs in the Arctic, to fulfill the reasonable demands of commerce and to carry out the U.S. science and research programs in polar regions."
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> "Complete implementation of this agreement by the Coast Guard will be dependent upon the appropriation of the necessary funds."

A recent presidential document emphasized the growing importance of the Antarctic regions to the United States. The ice-breaking mission in this polar region is in pursuit of the objectives of the Presidential Memorandum of 5 February 1982 on United States Antarctic Policy and Programs.

The Presidential Memorandum on Antarctic Policy and Programs was issued in response to the Antarctic Policy Group's 1981 study of United States interests in Antarctica and related policy and program considerations. The memo states that the "Antarctic Program shall be maintained at a level providing an active and influential presence in Antarctica designed to support the range of U.S. Antarctic interests...this presence shall include the conduct of scientific activities in major disciplines; year-round occupation of the South Pole and two coastal stations; and availability of related necessary logistics support". The memo also tasks the Coast Guard (DOT) with logistical support of the antarctic program. The Coast Guard maintains the United States' sole polar surface maritime capability necessary to project into the polar regions whenever and wherever we want in support of national interest.

Two other administrative regulations, Office of Management and Budget (OMB) Circular A-51 dated 4 August 1971, and National Security Decision Memorandum (NSDM) 318 dated February 1976 call on the Coast Guard to "make all reasonable efforts to assure the availability of icebreaker services as requested by the NSF for the Antarctic program" and mandate "the DOD and DOT ... to maintain the capability" to support the NSF program. They also direct DOT to "continue to provide, on a reimbursable basis, the logistics support requested by the NSF." This is provided for under an MOA between NSF and USCG dated 26 October 1982.

The advantages of Coast Guard operation of the icebreaker fleet are addressed in the 1982 Coast Guard Roles and Missions Study[1]. Two conclusions of that study are that marine science activities are an essential part of the U.S. Antarctic program that cannot be implemented without icebreaker support and that polar ice breaking in support of federal activities in both the Arctic and Antarctic is a valid federal mission and serves the national interest.

ICEBREAKER FLEET

The nation's polar icebreaker fleet consists of five ships: two POLAR Class - POLAR SEA and POLAR STAR; GLACIER; and two WIND Class - NORTHWIND and WESTWIND. These ships were commissioned in 1978, 1976, 1955, 1945, and 1944 respectively. The United States polar icebreaker fleet is, by a wide margin, the world's oldest, with a median age of 30 years. In contrast, the Soviet and Canadian fleets each have a median age of ten years. The Polar Icebreaker Requirements Study (completed July 1984), which examined polar icebreaker needs from all federal agencies through the year 2000, revealed that in terms of capability, the POLAR Class compares very favorably with the world's fleet. GLACIER, NORTHWIND and WESTWIND, however, fall below present day icebreaker standards, primarily because of outmoded systems and deteriorating material condition.

Probably more than any other class of Coast Guard cutter, icebreakers are multi-mission vessels. They have deployed in every ocean, including the Soviet Arctic, and often have been the first vessel ever to reach an area. They have performed the missions for which they were designed (military action, logistics support, ice escort, and research) and those unforeseen at the time of design.

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[1] These are, briefly: USCG is a military organization that would transfer with the icebreaker fleet to the Navy during wartime; USCG is the federal maritime law enforcement agency; USCG SAR responsibility extends to ice-covered waters; USCG is responsible for northern aids to navigation; USCG is tasked with overall facilitation of marine transportation; USCG has a vast amount of agency experience in ice-covered waters and maintains a cadre of specialized ice-qualified officers.

Additionally, they have been tasked with most traditional Coast Guard missions both inside and outside the polar regions: search and rescue, enforcement of laws and treaties, Navy fleet exercises and wartime patrols, aids to navigation, and environmental response. Simply put, "They do much more than just break ice."

The Coast Guard first deployed to the Antarctic on a continuing basis when preparations for the International Geophysical Year (IGY) increased yearly requirements for the icebreaker fleet in Antarctica. In the austral summer 1954-55, SOUTHWIND (then named USS ATKA) was sent to locate a site for future IGY stations.

To satisfy the nation's increasing interest in Antarctica, a new icebreaker, GLACIER, was constructed by the Navy in 1955. GLACIER primarily served in the Antarctic, because she had ice-breaking capability, science facilities, and cargo capacity superior to the WIND Class.

The preliminary logistics operations of the 1955-56 season, termed Deep Freeze I, sent building materials, equipment and supplies for the upcoming work and established two stations. Deep Freeze II, 1956-57, was part of the largest multi-nation Antarctic expedition in history; the U.S. sent twelve ships and 3,000 people. GLACIER arrived in McMurdo Sound on 28 October 1956, the earliest arrival date there ever. Four more stations were established, including South Pole. Operation DEEP FREEZE, which provides logistic and icebreaker support to Antarctica, has become an annual event since IGY. In 1968, GLACIER made the first extensive U.S. survey of the western Weddell Sea.

In 1982-83, POLAR STAR recorded the first complete circumnavigation by a U.S. surface vessel of the Antarctic continent below 60° S latitude. At the time POLAR STAR was conducting marine research and supporting U.S. inspections of foreign research stations, which verified their compliance with the Antarctic Treaty. The POLAR Class is superior to either the WINDS or GLACIER in ice-breaking capability.

HISTORICAL USAGE OF ICEBREAKERS

The fleet has during the past 17 years been used in four ways during polar operations: escort; logistics support; platform of observation; and sensor platform.

ESCORT

Escort duties have traditionally included escort of resupply, drilling, cable-laying, and research vessels through ice-covered waters. The icebreaker creates an open water path through which these ships can navigate. For research, drilling (coring), and cable-laying, these duties have also required the icebreaker to maintain an ice-free area around the vessel, so that operations would not be impaired by ice. Escort duties have also included creating and maintaining an open water channel in fast ice, to facilitate navigation.

Often times escort duties require the icebreaker to be on standby; the icebreaker is dispatched to assist vessel traffic as needed. During these standby periods, the icebreaker may be directed to perform bathymetric surveys, and survey underwater structures.

McMurdo Sound break-in/resupply is considered escort.

LOGISTICS SUPPORT

Logistics support duties have made extensive use of shipboard capabilities. In a majority of these operations, the icebreaker serves as a base for other operations, providing manpower, fuel, food, shelter, communications and transportation for field parties and detached boats and aircraft. It also requires icebreakers to carry cargo above and below decks, berth several passengers, and provide medical and repair facilities as needed.

These past operations are considered logistics support:

Antarctic Treaty inspection
Campbell Island logistics
Casey Station resupply
Hallett Station resupply
McMurdo Sound local operations
Palmer Station resupply

PLATFORM OF OBSERVATION

As a platform of observation, an icebreaker is used to deploy and retrieve equipment and make required observations. Because many research programs require observations in ice-covered waters, the utilization of an icebreaker normally insures that the researchers can reach the operating area and return safely. Most of the work is performed from aboard ship; however several research projects require coordinated operations utilizing the ship's boats and aircraft. Like logistics support duties, the icebreaker may be required to carry cargo above and below decks, berth several passengers, and provide medical and repair facilities.

Icebreakers have been used as observation platforms for the following purposes:

oceanography and marine sciences

acoustics	geology
biology	meteorology
chemistry	physics

study of polar features/processes

aurora	marginal ice zone
bathymetry	natural resources
glaciers	pollution effects
icebergs	sea ice

SENSOR PLATFORM

As a sensor platform, an icebreaker is instrumented to measure engineering parameters. Various shipboard systems may need to be calibrated in advance of the deployment. The icebreaker may additionally be required to provide logistics support or serve as a platform of observation.

Icebreakers have been used as sensor platforms for the following purposes:

acoustic systems calibration
acoustic systems tests
ambient noise measurements
full-power ice breaking tests
full-scale ice loading tests
full-scale ice resistance tests

OTHER

At times, the fleet has received special defense-related tasking.

NATIONAL SCIENCE FOUNDATION

The mission of the National Science Foundation is to support research in the sciences and engineering.

The research that is supported in the polar regions focuses primarily on developing a comprehensive understanding of the nature and the functioning of components of natural environmental systems. Thus, the projects regularly supported are in such disciplines as glaciology, meteorology, upper atmosphere physics, geology and geophysics, oceanography and polar marine biology. The Antarctic Living Marine Resources program, which assesses quality, quantity, and the enviroment of krill and fish stocks in the marine life cycle of the antarctic region, is one that requires icebreaker services.

As custodian of the national interest in the Antarctic, NSF's goal is to satisfy the policy to maintain an active and influential presence in the area. This presence is achieved in part by the maintenance of year-round stations at the South Pole and at two coastal sites, while the principal expression of the national interest is scientific research. Effective presence, indeed the conduct of virtually any meaningful activity, in

Antarctica, is a function of the availability of large quantities of bulk fuel. McMurdo Station at 77°-51'S, 166°-40'E is not only the southernmost coastal station, it is among the most accessible to ship transport and, therefore, a major bulk fuel delivery site. However, the final approach of some 15 to 30 miles to the station by ship requires icebreaker penetration of annual shore-fast sea ice.

The fundamental icebreaker requirement is, therefore, the annual channel break-in at McMurdo and the associated escort of the tanker and supply ships. Although the supply ships are ice-strengthened, icebreakers are required to cut and clear a channel through heavy concentrations of fast pack ice.

In 1991 the Antarctic Treaty may be up for review, if it is called for by one or more of the consultative parties. The political structure of the Antarctic may be significantly changed due to initiatives put forward by third world countries.

Exploitation of hydrocarbon resources in the Antarctic is unlikely before the year 2000. The technology required is beyond the highest level planned for the offshore Arctic, and the commerciality of such an exploitaion (if it were possible) is even more problematic. Specific polar icebreaker requirements for the traditional Coast Guard missions of Commercial Vessel Safety (for offshore facilities) and Marine Environment Response in the Antarctic are unlikely.

The Convention on Conservation of Antarctic Living Marine Resources may require boarding and inspection of U.S. vessels or facilities engaged in harvesting krill or other Antarctic marine life. At present support of the Convention has been limited to research into the marine ecosystem of the Antarctic, but provisions exist within the Convention for regulation of the quantity and species taken, including boarding and inspection.

In summary, future traditional mission requirements for polar icebreakers in the Antarctic will depend on treaty developments and U.S. policy in response to those developments.

To achieve the goals established by this administration, the United States must look to the issues of today and the happenings of the past and realize that a polar icebreaker fleet is an important element by which policy-makers can protect essential security interests, promote scientific research, and provide an active and influential presence in the Antarctic.