



National Science Foundation

4201 Wilson Boulevard
Arlington, Virginia 22230

Subject: National Science Foundation Request for Information No. DCCA-060024; Ice-Breaking services to Assist Re-supply of McMurdo Station, Antarctica

To Whom It May Concern:

The National Science Foundation (NSF), an independent agency of the United States Government, is seeking information regarding the long-term (10 or more years) availability of icebreaking services capable of enabling the re-supply of the U.S. Antarctic Program's (USAP) McMurdo Station. NSF is the U.S. Government Agency responsible for directing and funding the USAP, and manages the entire United States national program in Antarctica, including logistic support activities, so that the program may be managed as a single package.

Background

NSF is interested in contracting for icebreaking services to annually open a channel through 1-2 year 10/10ths sea ice, and then escort an ice-strengthened tanker and an ice-strengthened cargo ship to the pier at McMurdo Station, located at 77°51' S, 166°40' E. NSF intends for this to be a long-term arrangement. It is expected that a contract would include annual mobilization and de-mobilization periods (length of time to be determined based on location of home port) and an operating period in the Southern Ocean south of 60° S of approximately 6 to 8 weeks. After that period the vessel would be off-contract and free to engage in other work.

Traditionally, the USAP has relied on the U.S. Coast Guard (USCG) to perform the McMurdo break-in and ship escort service using its POLAR class ships. However, these vessels are 30 years old and are reaching the end of their design life. NSF is now seeking alternative means of opening the supply channel to McMurdo Station through a reliable long-term arrangement, either with a commercial or governmental provider, or through a multi-national arrangement.

NSF is not seeking binding offers to contract at this time; however, based upon the information received the Foundation may initiate discussions, seek offers, and award a contract with an owner or operator per the authority at 42 U.S.C. 1870(c).

The United States Antarctic Program

Scientific research, and operational support of that research, is the principal activity supported by the United States Government in Antarctica. The goals are to expand fundamental knowledge of the region, to foster research on global and regional problems of current scientific importance, and to utilize the region as a platform from which to support research. For projects involving fieldwork, the USAP supports research that can only or can best be done in Antarctica.

The Program has been in continuous operation since the 1957-1958 International Geophysical Year and continuation into the foreseeable future is anticipated. U.S. activities in Antarctica support the Nation's adherence to the Antarctic Treaty, which reserves the region for peaceful purposes and encourages international cooperation in scientific research. At present, 45

nations adhere to the treaty, and 29 of them are involved in Antarctic field activities. The United States cooperates scientifically and operationally with many of the Antarctic Treaty nations.

The major logistics hub for the support of this science is McMurdo Station. McMurdo is located on Ross Island in the Southern edge of the Ross Sea. It is the furthest south exposed land to which a ship can sail. Refer to <http://nsf.gov/od/opp/prss/> for a more complete description of the USAP research support facilities including McMurdo Station.

Typical Schedule and Operations

The icebreaker typically arrives at 60° S on or about December 25. Anticipated departure from McMurdo is mid-February of the following year (6-8 weeks after arrival). The basic tasks are to open a channel to the McMurdo Station pier, and escort a tanker and a freighter through the sea ice and channel to the pier and back to the open ocean as required

The freighter to be used during the 2005/2006 season will be the AMERICAN TERN (17,350 tons, 158.8m/23.16m). The tanker to be used will be one of five sister ships of the T-5 class (33,093 tons, 187.5m/21.2m). Use of supply ships of similar capacity and size are anticipated over the life of the contract. Additional information on these vessels may be found at:

<http://www.msc.navy.mil/inventory/ships.asp?ship=americantern&type=ContainerShip>

... and

<http://www.msc.navy.mil/inventory/ships.asp?ship=paulbuck&type=GovernmentownedTanker>.

The U.S. Navy, Military Sealift Command provides these vessels for the USAP. The tanker arrives at the McMurdo ice edge on or about January 16 each year, and departs on or about January 20 each year. The freighter arrives at the McMurdo ice edge on or about February 1 each year, and departs on or about February 11 each year.

Sea Ice

The fast ice in McMurdo Sound has typically been between 7 to 10 feet maximum thickness for a distance of 10 to 20 miles from McMurdo. It is often first or second year ice and had rarely been third year ice until very recently. Appendix I provides a listing of the extent of sea ice and the vessels used since 1957. For the past four years there have been extraordinary ice conditions due at least in part to the presence of large icebergs that were partially blocking McMurdo Sound. For those past four years there has been extensive first year ice with some inclusions of second year ice extending from McMurdo to about 100 miles north. Ice thicknesses were as great as 12 feet. Ice in the channel has blown out to open water once in that four-year period, but the surrounding ice extending approximately 14 miles north from McMurdo is multi-year ice. The two largest of the icebergs have moved out of the area since last year and it is expected that the coming season's ice should start to return to a more normal status in the short term, but clearly conditions can change rapidly and persist for extended periods.

A chart showing sea ice thickness measurements for 1987 to 2004 is included as Attachment 2. Recent archival images may be viewed at: <http://rapidfire.sci.gsfc.nasa.gov/subsets/?RossSea/>, and http://www.polar.org/sat_image/

Evaluation Information

Interested parties are free to provide any information that they believe may assist NSF in its evaluation of the availability and reliability of icebreaking services; however, the Foundation will not pay for any information submitted. Except as identified herein, no specific format is required.

Among the evaluation factors that NSF would consider in determining suitability of an existing or to-be-built vessel for icebreaking services would be:

- Vessel's ice classification and maximum ice thickness and speed of advance for continuous progress
- Vessel's displacement
- Statement of availability
- Ship's registry
- Vessel's or vessels' name and specifications using BIMCO Supplytime 89, Annex A as the format
- Name/address of vessel's owner and vessel's operator (if different)
- Certificate of current classification
- Time remaining prior to any major maintenance activity and dry docking
- Approximate price per day, and any extras (e.g., taxes, victuals, commissions, communications)
- Expected mobilization and demobilization charges and port of initiation/return
- Past performance contact information
- Special operating restrictions or conditions

It is highly desirable that the vessel have sufficient fuel storage to complete the entire Antarctic operation without any re-fueling from McMurdo. Please specifically indicate whether the intended vessel has the fuel storage capacity to enable this.

If the vessel must receive fuel during the period of time while operating in the Southern Ocean, McMurdo can provide an all purpose diesel fuel, JP-5. Specifications for this fuel are set forth on Page 4 of the publication titled *Fuel Users Guide, 2000*. It can be found at [http://usapc.army.mil/miscellaneous/2000%20fuel%20users%20guide%20\(sep%202000\).pdf](http://usapc.army.mil/miscellaneous/2000%20fuel%20users%20guide%20(sep%202000).pdf). Respondents are asked to review this fuel specification and comment on its suitability. If another diesel fuel must be used (e.g. MGO or MDO), NSF can have it delivered by the tanker coming to McMurdo. Please provide an estimate of the quantity of fuel that must be delivered (fuel consumed during mobilization and during ice breaking operations up to the time of the scheduled tanker arrival). There is no tankage for storage of specialty fuels in McMurdo, thus the fuel must be delivered directly from the tanker. The tanker cannot deliver heavy fuels.

Where fuel is expected to be provided at McMurdo, appropriate adjustments shall be made to the approximate price per day.

In the event of a need for heavy fuel, if necessary, the icebreaker could go to New Zealand to refuel – this will take time away from icebreaking duties and is not desirable. Respondents are asked to indicate if this mode of refueling will be required.

The Committee of Managers of National Antarctic Programs (COMNAP) is currently developing ballast water management plans for the Antarctic. A draft management plan is attached. Please comment on your ability to comply with this plan.

Thank you in advance for your interest in the acquisition programs of the National Science Foundation. Though NSF will consider any information interested parties choose to submit at any time, the privilege of your submission on or prior to February 28, 2006 is requested. Inquiries of a technical nature may be addressed to Mr. Michael Van Woert, Executive Officer, Office of Polar Programs, at the letterhead address, Room 755; by telephone to +1 (703) 292-8030; or by e-mail to mvanwoer@nsf.gov. Submissions and other inquiries may be addressed to the undersigned at the letterhead address, Division of Contracts and Complex Agreements, Room 475; by telephone to +1 (703) 292-8252; or by e-mail to jpate@nsf.gov.

Sincerely,

Patricia S. Williams
Contracting Officer

Attachments:

- Attachment 1 – Annual Extent of Sea and vessels used since 1957
- Attachment 2 – Sea Ice Thickness Measurements
- Attachment 3 – *Draft Ballast Management Plan*
- Attachment 4 – United States Antarctic Program Environmental Requirements

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Attachment 1

Attachment 1: Annual extent of Sea Ice

DF YEAR	SHIP(S)	BREAK-IN DATES		ICE EDGE DIST (NIM)	CUT DIRECTION
1957	GLACIER	28-Oct	02-Nov		
1958	GLACIER	16-Dec	22-Dec		
1958	BURTON IS	16-Dec	22-Dec		
1958	ATKA	16-Dec	22-Dec		
1959	EASTWIND	16-Dec	27-Dec	18	
1959	EDISTO	16-Dec	27-Dec	18	
1960	NORTHWIND	14-Dec	06-Jan	26	
1960	EASTWIND	14-Dec	06-Jan	26	
1960	GLACIER	14-Dec	06-Jan	26	
1961	GLACIER	04-Dec	20-Dec	13	
1961	STATEN IS	04-Dec	20-Dec	13	
1962	GLACIER	19-Nov	30-Nov	22	148
1962	EASTWIND	19-Nov	30-Nov	22	148
1962	BURTON IS	19-Nov	30-Nov	22	148
1963	GLACIER	14-Nov	17-Dec	67	187/ 148
1963	EASTWIND	14-Nov	17-Dec	67	187/ 148
1963	STATEN IS	14-Nov	17-Dec	67	187/ 148
1964	ATKA	14-Nov	07-Dec	21	140
1964	EASTWIND	14-Nov	07-Dec	21	140
1964	STATEN IS	14-Nov	07-Dec	21	140
1965	EASTWIND	22-Nov	05-Dec	19	
1965	GLACIER	22-Nov	05-Dec	19	
1965	STATEN IS	22-Nov	05-Dec	19	
1966	GLACIER	24-Nov	13-Dec	25.3	142
1966	BURTON IS	24-Nov	13-Dec	25.3	142
1966	ATKA	24-Nov	13-Dec	25.3	142
1967	GLACIER	23-Nov	16-Dec	16	142
1967	BURTON IS	23-Nov	16-Dec	16	142
1967	STATEN IS	23-Nov	16-Dec	16	142
1968	BURTON IS	29-Nov	02-Dec	18.4	140
1968	WESTWIND	29-Nov	02-Dec	18.4	140
1968	STATEN IS	29-Nov	02-Dec	18.4	140
1969	GLACIER	03-Dec	12-Jan	45	142
1969	BURTON IS	3=Dec	12-Jan	45	142
1969	SOUTHWIND	03-Dec	12-Jan	45	142
1970	EDISTO	28-Dec	15-Jan	13.3	141
1970	BURTON IS	28-Dec	15-Jan	13.3	141
1971	STATEN IS	11-Jan	24-Jan	23	

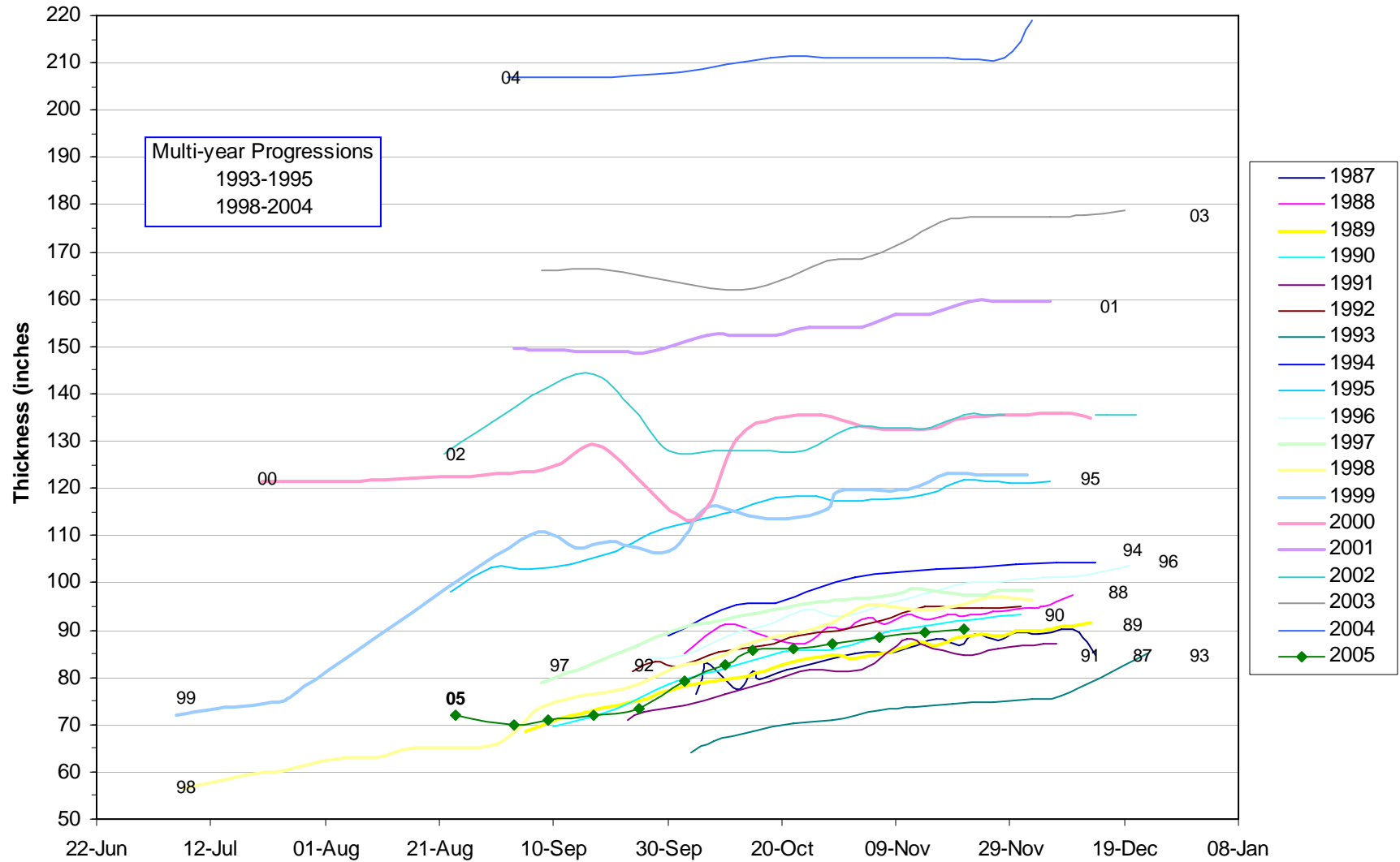
Attachment 1

1971	BURTON IS	11-Jan	24-Jan	23	
1972	STATEN IS	15-Dec	09-Jan	16	
1972	NORTHWIND	15-Dec	09-Jan	16	
1973	GLACIER	22-Dec	10-Jan	11	
1973	NORTHWIND	22-Dec	10-Jan	11	
1974	STATEN IS	30-Dec	15-Jan	17	140
1974	GLACIER	30-Dec	15-Jan	17	140
1975	GLACIER	30-Dec	16-Jan	22	141
1975	BURTON IS	30-Dec	16-Jan	22	141
1976	GLACIER	01-Jan	07-Jan	6	
1976	BURTON IS	01-Jan	07-Jan	6	
1977	NORTHWIND	04-Jan	21-Jan	20	
1977	BURTON IS	04-Jan	21-Jan	20	
1978	POLAR STAR	30-Dec	10-Jan	15	
1978	GLACIER	30-Dec	10-Jan	15	
1978	BURTON IS	30-Dec	10-Jan	15	
1979	POLAR STAR	09-Jan	03-Feb	31	
1979	GLACIER	09-Jan	03-Feb	31	
1980	NORTHWIND	03-Jan	15-Jan	16.5	
1980	POLAR SEA	03-Jan	15-Jan	16.5	
1981	POLAR STAR	10-Jan	21-Jan	16	
1981	GLACIER	10-Jan	21-Jan	16	
1982	POLAR SEA	15-Jan	27-Jan	23	159/ 142
1982	GLACIER	15-Jan	27-Jan	23	159/ 142
1983	POLAR STAR	06-Jan	18-Jan	28.2	162 /* 154
1983	GLACIER	06-Jan	18-Jan	28.2	162/ 154
1984	POLAR SEA	09-Jan	15-Jan	14	-
1984	WESTWIND	09-Jan	15-Jan	14	-
1985	POLAR STAR	16-Jan	25-Jan	14.5	140/ 152
1986	POLAR STAR	07-Jan	16-Jan	33	143/ 145
1986	GLACIER				
1987	POLAR SEA	08-Jan	17-Jan	32	148
1987	GLACIER	08-Jan	17-Jan	32	148
1988	POLAR STAR	02-Jan	03-Jan	8	145
1988	POLAR SEA	02-Jan	03-Jan	8	145
1989	POLAR SEA	04-Jan	06-Jan	8	
1990	POLAR STAR	03-Jan	04-Jan	31.8	197 **/ 149
1991	POLAR SEA	03-Jan	05-Jan	28.5	147
1992	POLAR SEA	02-Jan	04-Jan	18.6	148
1993	POLAR STAR	02-Jan	03-Jan	17.9	146
1994	POLAR SEA	01-Jan	01-Jan	18.2	135
1995	POLAR STAR	05-Jan	09-Jan	43	147

Attachment 1

1995	POLAR SEA	05-Jan	09-Jan	43	147
1996	POLAR STAR	05-Jan	07-Jan	14.2	148
1997	POLAR SEA	02-Jan	03-Jan	16.8	144
1998	POLAR STAR	30-Dec	05-Jan	16	140
1999	POLAR SEA	04-Jan	07-Jan	31	143
2000	POLAR STAR	28-Dec	29-Dec	37.2	145
2001	POLAR SEA				
2002	POLAR SEA				
2002	POLAR STAR				
2003	POLAR SEA				
2003	HEALY				
2004	POLAR SEA				
2004	POLAR STAR				
2005	POLAR STAR			80	
2005	KRASIN			80	

McMurdo Sound Sea Ice Thickness at Location of Sea Ice Runway



(DRAFT)

Practical guidelines for ballast water exchange in the Antarctic Treaty area

United Kingdom

Introduction

At the CEP IX meeting in Stockholm (June 2005) COMNAP raised the issue of the introduction of non-native marine species to Antarctic waters in ship ballast water. Vessels may transport marine organisms in ballast water from one biological region to another. On release of the ballast water at a different location the potential exists for transported species to colonise and multiply within the new site. Invasive marine species contained within ballast water could be transported into Antarctic waters, or moved between biologically distinct regions within the Antarctic Treaty Area, with negative effects for existing Antarctic marine ecosystems. Particular concerns relate to the transportation of sub-Antarctic species across the Polar Front, or even the movement of Arctic species to the Antarctic from vessels transiting between the two areas.

Norway noted that the issue was of global concern and referred to the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004. Norway suggested that consideration should be given to a voluntary application of the Convention within the Antarctic Treaty Area, as the entry into force of the Convention may yet take some time. Following general agreement among Antarctic Treaty Parties with the Norwegian proposal, the United Kingdom offered to develop practical guidelines for ballast water exchange relating to the Antarctic Treaty Area. This document is a first draft of such guidelines and the United Kingdom would welcome feedback on them from all interested parties.

Ballast water guidelines

- The application of these Guidelines shall apply [by 200[X]] to those vessels covered by Article 3 of the IMO's International Convention for the Control and Management of Ships' Ballast Water and Sediments (the Ballast Water Convention), taking into account the exceptions in Regulation A-3 of the Convention. These Guidelines do not replace the requirements of the Ballast Water Convention, but provide a Ballast Water Regional Management Plan for Antarctica under Regulation C-1 of this Convention.
- A Ballast Water Management Plan shall be prepared for each vessel with ballast tanks entering Antarctic waters.
- Each vessel entering Antarctic waters shall keep a record of ballast water exchange.
- For vessels intending to exchange ballast water within the Antarctic Treaty Area, ballast water must first be exchanged before arrival in Antarctic waters (preferably just north of either the Antarctic Polar Frontal Zone or 60 °S, whichever is the furthest north).

Attachment 3

- If only partial ballast water exchange in Antarctic waters is intended, then only those tanks that will be emptied need to undergo water exchange at the Antarctic Polar Frontal Zone.
- [If the vessel has taken on ballast water in Antarctic waters, it is recommended that the ballast water be exchanged on the journey north at the Antarctic Polar Frontal Zone, particularly if the vessel is proceeding to Arctic waters to prevent bipolar exchange of species.]
- [If ballast water is to be exchanged between biologically distinct regions within Antarctic waters, resulting in potential risk of intra-regional transfer of marine species, a risk assessment should be performed by a competent authority.]
- Release of sediments from ballast tanks should not take place in Antarctic waters.
- For vessels that have spent significant time in the Arctic, sediment should be discharged and tanks cleaned before entering Antarctic waters (south of 60°S).
- If the safety of the ship is in any way jeopardized by a ballast exchange, it shall not take place. Additionally these guidelines shall not apply to the uptake or discharge of ballast water and sediments for ensuring the safety of the ship in emergency situations or saving life at sea in Antarctic waters.
- Treaty parties are invited to exchange information (via COMNAP) on invasive marine species or anything that will change the perceived risk associate with ballast waters.

Attachment 4

C8. CONSERVATION OF ANTARCTIC ANIMALS AND PLANTS (Antarctic Conservation Act of 1979, as amended by the Antarctic Science, Tourism, and Conservation Act of 1996) **http://www.nsf.gov/od/opp/antarct/aca/nsf01151/aca_nsf_01_151.pdf**

C8.1 Definitions

The following definitions apply for the purposes of this section only.

C8.1.1 *Antarctica* means the area south of 60 degrees south latitude.

C8.1.2 *Antarctic Specially Protected Area* means an area designated by the Antarctic Treaty Parties to protect outstanding environmental, scientific, historic, aesthetic, or wilderness values or to protect ongoing or planned scientific research, designated at 45 CFR §670.29.

C8.1.3 *Harmful interference* means: (a) flying or landing helicopters or other aircraft in a manner that disturbs concentrations of birds or seals; (b) using vehicles or vessels, including hovercraft and small boats, in a manner that disturbs concentrations of birds or seals; (c) using explosives or firearms in a manner that disturbs concentrations of birds or seals; (d) willfully disturbing breeding or molting birds or concentrations of birds or seals by persons on foot; (e) significantly damaging concentrations of native terrestrial plants by landing aircraft, driving vehicles, or walking on them, or by other means; and (f) any activity that results in the significant adverse modification of habitats of any species or population of native mammal, native bird, native plant, or native invertebrate.

C8.1.4 *Management plan* means a plan to manage the activities and protect the special value or values in an Antarctic Specially Protected Area designated by the United States as such a site in 45 CFR §670.29.

C8.1.5 *Native bird* means any member, at any stage of its life cycle, of any species of the class Aves which is indigenous to Antarctica or occurs there seasonally through natural migrations, that is designated in 45 CFR §670.20. It includes any part, product, egg, or offspring of or the dead body or parts thereof excluding fossils.

C8.1.6 *Native invertebrate* means any terrestrial or freshwater invertebrate, at any stage of its life cycle, which is indigenous to Antarctica. It includes any part thereof but excludes fossils.

C8.1.7 *Native mammal* means any member, at any stage of its life cycle, of any species of the class Mammalia, which is indigenous to Antarctica or occurs there seasonally through natural migrations, that is designated in 45 CFR §670.19. It includes any part, product, offspring of or the dead body or parts thereof but excludes fossils.

C8.1.8 *Native plant* means any terrestrial or freshwater vegetation, including bryophytes, lichens, fungi, and algae, at any stage of its life cycle which is indigenous to Antarctica that is designated in 45 CFR §670.21. It includes seeds and other propagules, or parts of such vegetation, but excludes fossils.

C8.1.9 *Protocol* means the Protocol on Environmental Protection to the Antarctic Treaty, signed October 4, 1991, in Madrid, and all annexes thereto, including any future amendments to which the United States is a Party.

C8.1.10 *Take or taking* means to kill, injure, capture, handle, or molest a native mammal or bird, or to remove or damage such quantities of native plants that their local distribution or abundance would be significantly affected or to attempt to engage in such conduct.

C8.1.11 *Treaty* means the Antarctic Treaty signed in Washington, D.C. on December 1, 1959.

C8.2 Prohibited Acts

Attachment 4

The Contractor and its personnel are prohibited from committing any of the following acts. Failure to abide by this section shall result in the removal of the Contractor's personnel from assignment to this contract, and may constitute grounds for a default termination.

C8.2.1 Taking any native mammal or native bird, or native plant.

C8.2.2 Engaging in harmful interference.

C8.2.3 Entry into any Antarctic Specially Protected Area (ASPA) except when covered under a permit and in accordance with the relevant ASPA Management Plan.

C8.2.4 Possess, sell, offer for sale, deliver, receive, transport, or ship by means any native mammals, plants, or birds.

C8.2.5 Import or export any native mammals, plants, or birds collected in Antarctica to or from the United States and its possessions and jurisdictions, or any third country.

C8.2.6 Introduce any non-indigenous animals or plants into Antarctica.

C8.3 Exceptions

The following acts constitute allowable exceptions to the prohibited acts described in C8.2.

C8.3.1 Acts committed under emergency circumstances to prevent the loss of human life.

C8.3.2 Acts committed to aid or salvage native mammals or birds if such action is necessary to aid a sick, injured, or orphaned specimen; to dispose of a dead specimen; or salvage a dead specimen which may be useful for scientific study.

C8.3.3 Transport of native birds, mammals or plants, or any non-indigenous animals or plants within Antarctica in the normal course of work, provided a permit has been issued to the USAP or other personnel involved in accordance with 45 CFR Part 670 by the United States or other third country in accordance with the Protocol.

C8.3.4 Any acts taken per C8.3.1 or C8.3.2 shall be reported immediately to the Director of the National Science Foundation, or an office or employee of the National Science Foundation so designated by the Director.