NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)

NOTICE: WFF-14-03

ANTARCTIC SCIENCE, TOURISM, AND CONSERVATION ACT (ASTCA), NATIONAL ENVIRONMENTAL POLICY ACT (NEPA), AND EXECUTIVE ORDER 12114: Southern Hemisphere Ultra Long Duration Ballooning (ULDB) Operations Expansion

AGENCY: NASA Goddard Space Flight Center's Wallops Flight Facility

ACTION: Finding of Not More than Minor or Transitory Impact / Finding of No Significant Impact

SUMMARY: Pursuant to the Antarctic Science, Tourism, and Conservation Act of 1996 (16 U.S.C. § 2401 et seq.), which implements the 1991 *Protocol on Environmental Protection to the Antarctic Treaty*, and applies Section 102(2)(c) of the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. § 4321 et seq.) to Federal actions in Antarctica, NASA has determined that its proposed Southern Hemisphere ULDB operations expansion would have not more than a minor or transitory impact on the Antarctic environment. Similarly, in accordance with NEPA, NASA has made a Finding of No Significant Impact with respect to its same action. Finally, in accordance with Executive Order 12114, *Environmental Effects Abroad of Major Federal Actions*, NASA has determined that its Proposed Action would not have a significant effect on the environment of foreign nations or the global commons.

ADDRESS: The Initial Environmental Evaluation (IEE) / Environmental Assessment (EA) that supports and serves as a basis for this Finding is available by contacting:

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SUPPLEMENTAL INFORMATION: Since 1990, NASA has launched Long-Duration Balloons (LDBs) in Antarctica in support of its research in the Earth and space sciences. Historically, these balloons remain aloft for anywhere between 2 hours and 54 days or more, and do not leave the Antarctic continent. At the end of each flight, both the balloon and the scientific payload land on the continent or ice shelf and are recovered if it is safe to do so.

As an evolutionary step in balloon technology development, NASA proposes to launch a longer duration test flight of a 532,000-cubic meter (m^3; 18.8 million cubic-foot [MCF]) Super Pressure Balloon (SPB[1]) from the LDB facility near Williams Field, adjacent to McMurdo Station, Antarctica, during the December 2014 to January 2015 austral

[1] The term "SPB" refers to the balloon itself, whereas the term "ULDB" refers to the flight duration and mission profile (i.e., >60 days) of the subject balloon system.

summer season. This ULDB[1] could drift beyond the continental limits of Antarctica and could hypothetically travel as far north as latitude 40° South (40°S) over the course of its intended 100+ day circumpolar flight. At the completion of its flight, it is possible that the balloon system would land in the open ocean, thereby reducing the likelihood of a successful recovery.

Following the launch from Antarctica, NASA would conduct a second ULDB mission from Wanaka, New Zealand in April 2015. Planned to be a circumglobal, 100+ day flight of a 18.8 MCF SPB, the balloon would be launched from the Wanaka Airport located at approximately 45°S and travel in an easterly direction between the 29°S and 65°S latitude bands. This balloon would have a higher probability of being recovered in a terrestrial area when it landed.

Although the primary purpose of these two flights is to test the ability of the 18.8 MCF SPB system to remain aloft for extended periods of time, if each flight is successful, the scientific demand for the SPB configuration would likely increase and such ULDB flights would become more commonplace. Therefore, in the longer term (i.e., 2016 and beyond), a maximum of one Antarctica and two New Zealand ULDB flights would be launched annually. As the 18.8 MCF SPB design gains flight heritage, NASA would continue to scale the technology to a larger design, up to approximately 740,000 m^3 (26.2 MCF). Accordingly, NASA's Proposed Action entails both the initial ULDB technology demonstration phase and its expected longer-term operational phase.

Alternatives Considered

The IEE/EA evaluates in detail NASA's Proposed Action and three alternatives, including a "no action" alternative. Under the Proposed Action, NASA would launch an initial ULDB demonstration flight in 2014 followed by one flight each year from the LDB facility near Williams Field, McMurdo Station, Antarctica during austral summer. Additionally, NASA would establish a launch site at the existing airport near Wanaka, New Zealand, where it would conduct an initial demonstration flight in 2015 and then up to two ULDB flights per year during austral fall and winter. Under Alternative A, ULDB flights would only be conducted from Antarctica; Alternative B would entail ULDB flights only from New Zealand. Under the "no action" alternative, NASA would continue its existing scientific ballooning activities in Antarctica; however, flights would be required to remain over the Antarctic continent and would not likely meet the targeted 100-day flight duration.

Environmental Analysis

The IEE/EA examines the potential effects of the alternatives on physical, biological, and social resources within the project's "action area," which is defined as the area between 29°S and 90°S latitudes. In summary, due to the fact that areas of greatest environmental sensitivity would be avoided when planning a flight termination and (in the event of an

oceanic landing) the rapid sink rate of the balloon system to depths below which most marine species occur, the IEE/EA concludes that potential effects to these resources would be negligible to minor.

Related Environmental Reviews

While preparing the IEE/EA, NASA consulted with the National Marine Fisheries Service (NMFS) pursuant to the Endangered Species Act (ESA; 16 U.S.C. § 1531 et seq.). In an August 11, 2014 letter, NMFS concurred with NASA's determination that the Proposed Action is not likely to adversely affect Federally listed marine mammal, sea turtle, and fish species. Additionally, in accordance with the National Historic Preservation Act (NHPA; 16 U.S.C. § 470 et seq.), NASA considered the effects of its action on overseas sites of cultural significance. The analysis concludes that it would be highly unlikely for the Proposed Action to adversely affect such sites. As such, NASA met its obligations with respect to both the ESA and NHPA in parallel with the development of the IEE/EA.

Conclusion

On the basis of the IEE/EA, NASA has determined that the environmental impacts associated with its Proposed Action would be not more than minor or transitory within the meaning of ASTCA and the *Protocol on Environmental Protection to the Antarctic Treaty*. Therefore, a comprehensive environmental evaluation will not be prepared. Similarly, in accordance with NEPA, NASA has determined that its Proposed Action would not individually or cumulatively have a significant impact on the quality of the human environment. Therefore, in accordance with NEPA, an Environmental Impact Statement (EIS) is not required. Likewise, as defined in Section 3-4 of EO 12114, NASA's Proposed Action would not have a significant effect on the environment of foreign nations or the global commons, and an "Overseas" EIS will not be prepared. Consistent with NASA's commitment to conducting its research while also considering the environment, all mitigation, monitoring, and reporting measures identified in the IEE/EA will be implemented to the fullest extent practicable.

19 AUGUST 2014

William A. Wrobel
Director
Wallops Flight Facility

Date