

**Attachment**  
**Purpose of Modification**

Bigelow Aerospace, LLC (“Bigelow Aerospace” or “BA”) requests modification of its current experimental authority for its expandable Space Habitat testing program, allowing it to operate additional transmit/receive Earth stations in Alaska and Hawaii using the previously authorized VHF and UHF frequencies (see Call Signs WD2XND and WD2XWW). As originally authorized, BA’s experimental license anticipated the use of two tracking and data collection Earth stations, with the possibility of adding up to three additional locations. BA has decided to develop its second and third stations in Hawaii and Alaska (instead of Fairfax, Virginia, as originally authorized) because these locations provide for superior access to and communication with the spacecraft.

The initial stage of BA’s experimental program, the launch and operation of the Genesis-1 spacecraft into low-Earth orbit, has been ongoing since mid-July 2006 and is sending back invaluable telemetry and spacecraft health information data to BA’s Earth station facility in North Las Vegas, Nevada. The purpose of this mission is to validate the basic design concepts for the spacecraft and to conduct and monitor the first ever in-orbit pressurization of an expandable space habitat prototype. Access to and analysis of this data have already demonstrated the efficacy of in-orbit pressurization and the durability of expandable space platforms, but much more is yet to be learned from this initial experimental mission.

Currently, data can be transmitted from Genesis-1 for only 12 to 15 minutes during each orbital pass over the single operational ground station in North Las Vegas. As a result, only a fraction of the available mission data is actually being transmitted to BA’s technical staff for review and analysis. Genesis-1 is now going through a critical phase during which very large amounts of vital performance data are being generated with respect to the expandable habitat's shell. Acquiring and evaluating this information is the central purpose of the Genesis-1 mission. Timely and complete access to this data is essential to ascertaining the space habitat's structural integrity, durability and longevity, and is paramount to BA's ability to enhance the technology and move forward to construct, launch and operate future prototype spacecraft. Data that does not reach BA due to a lack of ground infrastructure is forever lost, and will hinder its spacecraft development program.

Since the Genesis-1 launch in July, BA has been receiving only half of the spacecraft health and telemetry data originally intended. Moreover, with each day that passes, important collection and monitoring capacity may be lost (*i.e.*, both on-board camera capability and data-collection sensors have deteriorated and will continue to do so during the course of the mission). Accordingly, Bigelow Aerospace requires additional ground stations in order to monitor the physical state of the Genesis-1 spacecraft and maximize the utility of this initial experimental mission.