

Attachment
Purpose of Modification

Bigelow Aerospace, LLC (“Bigelow Aerospace” or “BA”) requests modifications of its current experimental licenses relating to its expandable space habitat development and testing program. These modifications will allow BA to operate an additional transmit and receive Earth station at Loring Air Force Base (“Loring AFB”) in Maine using the previously authorized UHF (Call Sign WD2XND), VHF/UHF (Call Sign WD2XWW), and X-band (Call Sign WE2XFH) frequencies. As originally authorized, BA’s experimental licenses anticipated the use of several tracking and data collection Earth stations, with the possibility of adding several additional locations. Bigelow Aerospace has decided to develop its fourth Earth station at Loring AFB.

The initial stage of BA’s experimental program, the launch and operation of the Genesis I spacecraft into low-Earth orbit, has been ongoing for one year, since July 12, 2006, and the pathfinder spacecraft continues to provide invaluable telemetry and data via BA’s existing Earth station facilities in Nevada, Hawaii, and Alaska. The same three Earth stations are also monitoring the Genesis II spacecraft, recently launched by BA out of Russia on June 28, 2007. The purpose of these missions is to validate, demonstrate and gain experience with the systems and technology necessary to support a full-scale, crewed, private sector space complex. Analysis of data from Genesis I and Genesis II has already demonstrated the general efficacy of expandable space habitat technology, and much more will be learned in the future, particularly in regard to the long-term durability of the spacecrafts’ design.

In order to maximize the mission data obtained from the Genesis program and prepare for future implementation of full-scale, crewed habitats, BA needs additional tracking and monitoring Earth stations at carefully selected locations. Acquiring and evaluating the vital performance data generated by BA’s sub-scale spacecraft, including information concerning pressurization, envelope integrity, temperature, and radiation levels, are critical aspects of the Genesis I and Genesis II missions. Timely and complete access to this data is essential for BA to move forward in its efforts to develop full-scale systems capable of sustaining a human presence in orbit.

Bigelow Aerospace has identified and secured authority to use the Loring Air Force Base location, described herein, as an appropriate uplink/downlink point to add to its existing experimental ground infrastructure (uplink only at VHF; downlink only at X-band). This will allow recovery of additional data from both Genesis I and Genesis II, as well as the future ‘Sundancer’ mission. Technical parameters for the transmitters operating in each band will be identical to those already operating at the three previously authorized Earth station facilities. Accordingly, BA requests authority to operate Earth stations at this additional location in order to better monitor its on-orbit spacecraft and maximize the utility of these experimental missions in support of the development of future operations.