

National Aeronautics and  
Space Administration  
**Office of the Administrator**  
Washington, DC 20546-0001



March 15, 2010

Vice Admiral Joseph W. Dyer, USN (Ret.)  
Chairman  
Aerospace Safety Advisory Panel  
National Aeronautics and Space Administration  
Washington, DC 20546

~~Joe~~  
Dear Admiral Dyer:

Enclosed is NASA's response to Recommendation 2009-03-06 from the 2009 Third Quarterly Meeting of the Aerospace Safety Advisory Panel (ASAP). Please do not hesitate to contact me if the Panel would like further background on the information provided in the enclosure.

I look forward to receiving continued advice from the ASAP that results from your important fact-finding and quarterly meetings.

Sincerely,

A handwritten signature in black ink, appearing to read "C. Bolden, Jr." with a stylized flourish at the end.

Charles F. Bolden, Jr.  
Administrator

Enclosure

**Tracking Number 2009-03-06**

**Human Rated Requirements (HRR) for Commercial Orbital Transportation (COTS)**

**Recommendation**

Recent events make it likely that use of commercial vehicles to transport NASA crews to Low Earth Orbit (LEO) will occur much sooner than most had planned. While the Panel recognizes that authority and direction to proceed in this direction has not yet been formally given to NASA, it also recognizes that systems to meet this need are already under development by COTS vendors. If these systems are ever to provide the level of safety expected for NASA crews, it is imperative that NASA's criteria for safe design of such systems be agreed upon and provided to such COTS enterprises. This issue is becoming more focused and more urgent. Human rating of COTS for the delivery of NASA astronauts into space is now one of the Panel's primary concerns. Recommend the COTS HRR be established as soon as possible and promulgated to those that seek to design systems for this future mission.

**NASA Response**

NASA concurs. NASA has determined that human rating requirements will apply to commercial crew transportation systems used by the government, once the authority and direction have been formally given to NASA to pursue commercial crew transportation systems. NASA and COTS will employ the "Process for Developing Safety Goals for NASA's Mission" as described in the flow chart on the following page. We are using American Recovery Act funds to develop these requirements in FY 2010. NASA's approach to human rating an architecture for a specific mission starts with the initial design phase and assumes that all pertinent NASA standards and requirements are followed throughout the project. This task will define a minimum set of human rating requirements and consolidate them into a single product using a development team comprised of representatives from NASA's human space flight programs, NASA technical authorities, and the NASA Astronaut Office. To perform this task, the team will seek the advice of commercial stakeholders, as well as the Federal Aviation Administration.

