

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



August 16, 2011

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

Dear Admiral ^{Joe} Dyer:

Enclosed are NASA's responses to Recommendation 2011-02-03 and 2011-02-04 from the 2011 Second Quarterly Meeting of the Aerospace Safety Advisory Panel (ASAP). Please do not hesitate to contact me if the ASAP would like further background on the information provided in the enclosures.

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 long horizontal flourish extending to the right.

Charles F. Bolden, Jr.
Administrator

2 Enclosures:

1. 2011-02-03 Space Operations Mission Directorate (SOMD) and Exploration Systems Mission Directorate (ESMD) Organizational Merger
2. 2011-02-04 Safety and Mission Assurance Software Assurance

Tracking Number 2011-02-03
Space Operations Mission Directorate (SOMD) and Exploration Systems Mission Directorate (ESMD) Organizational Merger

Finding

SOMD and ESMD are being merged into one organization. The primary purpose (directed by the Administrator) is to provide a single organization that is responsible for working all human spaceflight activities with outside entities.

Recommendation

The Office of Safety and Mission Assurance (OSMA) should review the current reorganizational plans to ensure that no current critical safety and mission assurance (SMA) aspects, particularly programmatic, are inadvertently eliminated or disrupted due to the merger.

Rationale

OSMA must ensure that no current SMA functions or skill sets are overlooked during the reorganization's implementation.

NASA Response

NASA concurs with the ASAP recommendation. OSMA has stayed informed of the status of the ESMD/SOMD merger as it has progressed, both in numerous all-hands, as well as Directorate Staff Meetings and informal status meetings. OSMA has been asked to comment on the merger directly by both ESMD and SOMD Directorate Associate Administrators (AA) (one of whom is scheduled to be the combined Directorate AA). OSMA comments have been taken into consideration and satisfactorily discussed between the new Directorate AA and the Chief, SMA. OSMA continues to work with ESMD and SOMD to support a smooth transition.

OSMA believes that SMA matrix support to the combined Directorate will not be adversely affected. In some ways, support to the new merged Mission Directorate may even become more efficient due to establishing a single point of contact for a similar set of mission areas at the OSMA division level. SMA resource allocation will not be diminished, and the SMA community hopes to maximize benefit from increased knowledge sharing, decision streamlining, and ability to transfer resources and expertise more easily across a single Mission Directorate.

Tracking Number 2011-02-04
Safety and Mission Assurance Software Assurance

Finding

The Agency currently has no requirement that mission critical or safety critical software undergo 100 percent independent validation and verification (IV&V); it is done to the extent that budget permits.

Recommendation

OSMA should do an analysis on what the impact is to NASA's critical programs by not doing 100 percent IV&V testing for software assurance.

Rationale

One hundred percent IV&V is fundamental to the safe operation of systems.

NASA Response

NASA appreciates the panel's insight; however, NASA does not concur with the recommendation to do an analysis on what the impact is to NASA's critical programs by not doing 100-percent IV&V testing for software assurance. At NASA, IV&V is only one of the disciplines in the software assurance effort being applied to projects, the other disciplines being: software quality (software quality engineering, software quality assurance, and software quality control); software safety; software reliability; and software verification and validation. At this time, NASA feels that its approach to the use of IV&V on selected safety and mission critical software, which is based upon risk assessments and associated classification schemas, provides an acceptable level of risk reduction for the Agency. As with all of NASA's processes, the processes for choosing the software, projects, and programs that receive IV&V are regularly revisited to ensure their effectiveness.