April 13, 2012

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

Dear Admiral Dyer:

Enclosed is NASA’s response to a recommendation from the 2012 First Quarterly Meeting of the Aerospace Safety Advisory Panel (ASAP). Please do not hesitate to contact me if the ASAP world 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,

Charles F. Bolden, Jr.
Administrator

Enclosure
2012-01-05 Maintaining NASA Pilot Proficiency
Finding:
Flying complex aircraft and maneuvers for NASA missions requires that a minimum level of flight proficiency must be obtained in the aircraft, with some augmentation from flight simulators. With the exception of astronaut flying, NASA pilots historically have relied on achieving the required proficiency through operational missions paid for by funded projects. This can be a challenge when an aircraft is down for extended major maintenance or modification for a research campaign, long intervals between projects, or general loss of project funding. In fact, decreased project funding over the past seven years has resulted in an accompanying decrease of approximately 32 percent of flight time and 37 percent sorties available for NASA flight crews to fly. This is further exacerbated in that program managers are reluctant to fund dedicated flight training, instead insisting that project funding be used exclusively for project completion.

In the past, this challenge has been mitigated in two ways. Chiefs of flight operations at Centers actively collaborate to obtain flight time for their pilots at other Centers, and HQ/OSII/AMD manages a small budget for flight simulator contracts. As NASA’s budgets decline, both solutions no longer can mitigate the loss of operational flying.

Recommendation:
NASA should investigate the risk of reliance on its historical approach for maintaining pilot proficiency considering anticipated further budget reductions, including an assessment of the need to develop a centrally-funded flight training budget so as to ensure all NASA pilots maintain flight proficiency.

Rationale:
Declining project budgets can result in reduced flight opportunities to a level where flight crews are unable to maintain a minimum safe level of proficiency, yet no Headquarters process exist[s] to provide funding for pilot-proficiency training flights.

NASA Response:
NASA concurs that pilot proficiency is a significant risk factor in aircraft mishaps and an important area of focus for the Agency. Several years ago, the Office of Strategic Infrastructure (OSI) formally identified pilot training as an Agency risk, tracked it in Active Risk Manager within the Integrated Collaborative Environment Portal, and implemented several mitigating strategies and controls to manage that risk. While total flight time and sorties have decreased over the past seven years as pointed out by the ASAP, so too have the number of NASA active aircraft. Moreover, while the number of aircraft supporting Shuttle has decreased with transition, the number of aircraft supporting Earth Science and other Science Mission Directorate (SMD) missions has increased, with more growth expected. That said, declining budgets and cancelled programs underscore the importance of pilot proficiency and require vigilance and focused effort to assure safe operations. It is important to note that, to date, nearly all pilot proficiency requirements, with the exception of simulated emergencies and certain mission profiles, have
been met in the course of regular mission flights and the use of dedicated flight proficiency aircraft. This is the most cost-effective approach and explains why program managers are reluctant to pay for additional proficiency flights. Our approach to mitigate this risk addresses the following critical areas that combine to argue against a centralized budget for flight training beyond the HQ funding already in place (overguide requested beyond 2014) for pilot simulator training:

- Agency policy requirements;
- Focused Center reviews and oversight;
- A newly implemented aviation Safety Management System (SMS) recertification process;
- Modifications to the NASA Aircraft Management Information System (NAMIS);
- A newly established formal approach to sharing pilot and crew resources across all Centers; and
- A centrally funded flight crew training program (contract simulators) in OSI/Aircraft Management Division (OSI/AMD).

**Agency Policy:**
In accordance with NASA Procedural Requirements (NPR) 7900.3C, Aircraft Operations Management Manual, paragraph 3.4.3.4—"Lapse in Qualification. Crewmembers overdue the annual flight time requirement are disqualified for assignment as PIC or SIC [Pilot in Command or Second in Command]. The Center's Chief of Flight Operations shall document the method to regain qualification in the flight crew training plan and notify the Assistant Administrator for the Office of Strategic Infrastructure, via HQ AD [OSI/AMD], of this action in a letter from the Center's Director. At a minimum, it will include a dedicated training flight or training in a simulator and a formal flight evaluation by an instructor pilot prior to further mission assignments. The Center's Chief of Flight Operations shall establish requalification procedures for pilots not meeting any of the remaining requirements above."

**Focused Center Reviews and Oversight:**
NASA’s Intercenter Aircraft Operations Panel (IAOP) inspection program continuously monitors Centers’ flight programs to include pilot proficiency standards. These inspections allow NASA to identify and mitigate the risk associated with non-compliance to Agency standards. Where Centers are not meeting NASA proficiency and currency standards, they are required to either put in place a corrective action plan or restrict flight operations.

**Aviation SMS:**
NASA was the first Federal Agency to implement an internationally accepted SMS Agency wide two years ago. As part of the SMS recertification process, NASA is formalizing a pilot training program. This effort will identify pilot proficiency and currency requirements that Centers will be required to maintain. Each Center program is required to comply with overarching Agency pilot standards as defined in NPR 7900. NASA is scheduled to have an independent audit conducted by the General Services Administration in October 2012 to validate the rigor of our training program in accordance with SMS standards.
NAMIS Modifications:
NAMIS is being modified to allow Center Chiefs of Flight Operations visibility into the qualifications and currency status of all NASA pilots.

Sharing Pilot Resources:
In February 2012, the IAOP (all Center Chiefs of Flight Operations) began formal monthly telecons with the SMD/Airborne Science Program Manager with the express purpose of optimizing the use of NASA aircraft and crew. This forum is also utilized to identify pilot proficiency training opportunities with other Centers before lack of proficiency becomes an issue.

Centralized Flight Simulator Training Budget:
OSI/AMD continues to maintain a small budget (overguide requested for 2014 and beyond) for flight simulator contracts used to supplement pilot training at Centers using FAA-approved simulators for common aircraft platforms flown within the Agency. Each Center is allocated quotas that are managed within OSI. Central contract management offers economies of scale that reduce cost to the Agency by 40-50 percent over what Centers would pay on an ad hoc basis.

Summary:
The NASA aircraft fleet is highly diverse with respect to complexity and crew qualifications and varies greatly from Center to Center. This diversity and extreme difference in cost per flight hour does not lend itself to informed centralized budgeting. Pilot proficiency is an Agency risk that needs to be managed at the Center level. Part of that management is defining a Center pilot training program that captures mission flight time while optimizing pilot utilization across platforms and collaboration with other Centers. The newly formalized shared resource process that includes a major program customer is a significant step in establishing dialogue and trust to assure mission success and safety. If this approach fails to provide sufficient pilot proficiency opportunities, programs have been advised and reminded that they will have to cover those costs or the aircraft may not be available. OSI/AMD, with the assistance of the IAOP, will continue to monitor pilot proficiency and currency through biennial IAOP Center reviews and NAMIS reports to ensure that NASA pilots obtain sufficient training to provide for safe flight operations.