

**National Aeronautics and Space Administration**

**AEROSPACE SAFETY ADVISORY PANEL  
PUBLIC MEETING**

August 18, 2005

**Washington Operations Center**

**Washington, DC**

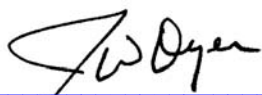
**MEETING MINUTES**

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**John D. Marinaro**  
Executive Director

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**VADM Joseph W. Dyer, USN (Ret)**  
Panel Chair

# **AEROSPACE SAFETY ADVISORY PANEL (ASAP) PUBLIC MEETING**

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## **Panel Attendees**

**VADM Joseph W. Dyer, USN (Ret), Chair**

**Dr. Amy K. Donahue**

**Dr. Augustine O. Esobue**

**Maj Gen Francis C. Gideon, Jr., USAF (Ret)**

**Ms. Deborah L. Grubbe**

**Mr. John C. Marshall**

**Mr. Steven B. Wallace**

**Mr. Rick E. Williams**

**Mr. John D. Marinaro, Executive Director**

## **Panel Members Not In Attendance**

**Dr. Dan L. Crippen**

**BG Joseph A. Smith, U.S. Army, Ex-Officio member**

The first 30 minutes of the meeting were reserved for public comment on safety in NASA. No members of the public requested time to make a public comment and no members of the public submitted any written comments.

## **INTRODUCTION**

Vice Admiral Joseph Dyer introduced himself, welcomed the participants, and asked all those in attendance to introduce themselves.

## **OPENING COMMENTS**

Vice Admiral Dyer summarized the highlights of the previous two days of fact-finding that included the Aerospace Safety Advisory Panel's (ASAP's) visit to the Goddard Space Flight Center (GSFC) on August 16 and NASA Headquarters on August 17. The highlights included spending time with NASA's new Administrator, Dr. Michael Griffin, time with members from the Stafford-Covey Return-to-Flight Task Group, and reviewing the areas of Program Analysis and Evaluation, strategic management, personnel, career opportunities, and the culture and how it's evolving.

He [VAdm. Dyer] stated the overarching observation from the Goddard visit was the Panel's appreciation of how much good science NASA does and how seldom it is in the news. He summarized the success of Goddard's launches, which included 235 successful launches over the past 40 years, their support of the National Oceanic and Atmospheric Administration, and indicated that they are the spear tip for NASA's and America's look at Earth-like planets and life beyond Earth.

## **GSFC MANAGEMENT APPROACH FOR SAFETY AND MISSION SUCCESS**

Mr. Rick Williams discussed three of the major areas that the Panel observed during the visit to the Goddard Space Flight Center.

Mr. Williams opened with a summary and assessment of the overview that the Deputy Center Director, Chris Scholese, gave on the organization and how it works with the NASA Headquarters Science Mission Directorate and Agency functional leadership. He also noted that the Panel received a timely update from Mr. Scholese on the GOES-N (Geostationary Operational Environmental Satellite) Delta IV Launch that had been scrubbed the night before and the Goddard management process for making that decision.

The second area that Mr. Williams discussed was the briefing related to Goddard's Independent Technical Authority (iTA) deployment process. He indicated that they spent time understanding how Goddard was using its Engineering and Safety and Mission Assurance resources at the Center to appropriately deal with the checks and balances.

The third area was Goddard's project life-cycle approach and the application of the multiple layers of checks and balances that exist and culminate at the top with the Program Management Council chaired by the Deputy Center Director. He stated the Panel was very interested in hearing Goddard efforts related to moving to a learning organization including their lessons learned process. The bottom line is that they are making progress, but they haven't achieved everything they're trying to accomplish in this area. He also indicated that this is typical of a learning organization, which is more a journey than a specific destination.

He closed by stating the Panel was impressed with the Goddard people, processes, and their “learn by doing” approach, which is an effective way to develop engineers. The Goddard model is similar to the one that they observed during the ASAP’s visit to the Jet Propulsion Laboratory, and they continue to see opportunity for more common approaches inside NASA.

## **GSFC SAFETY PROGRAM AND PROCESS**

Ms. Deborah Grubbe discussed the Goddard safety program and associated processes. She started by saying that Goddard is a very complex site with multiple locations and that they are doing a very good job integrating process safety and personal safety. She believes that they are taking good care to address and balance both aspects of it [the safety program] and sees that as a strong positive. The indication of this is that Goddard’s team in the past year has conducted approximately 100 thermal vacuum tests, more than 100 vibration tests, over 100 lifts by crane, and 20 to 30 balloon lifts, all with sensitive loads, that include expensive, one-of-a-kind satellites, instruments, and finely tuned equipment.

Their largest personal safety issue is “Slips, Trips, and Falls,” which is not uncommon in the industry. It has caused a few lost-time incidents in the past year and for a laboratory site there could be improvements there. She made the following two-part recommendation to the chairman:

1. Goddard has to start addressing, in a formal way, the monitoring, tracking, and analysis of close-calls. She said that they have been doing good work in identifying them, but a little more rigor could be helpful.

The dataset that they have for injury incident trend analysis is really small because they are really not hurting people with respect to reportable incidents, accidents, or lost workday cases. General Gideon asked which of the other Centers she may have heard have good examples in this area. She said that the Johnson Space Center was the most advanced with respect to peeling the onion back and getting underneath. Vice Admiral Dyer then asked if Goddard’s statistics included contractor safety and Ms. Grubbe said that they did not, which led to the second part of the recommendation.

2. Encourage Ms. Bruner and her Goddard management team and to be very aggressive in the area of contractor safety and to move very quickly in this direction.

Ms. Grubbe stated that she thought good lessons could be learned on this from the Jet Propulsion Laboratory. In order to take contractor safety to the next level, the GSFC needs to begin to capture and report contractor safety statistics to their own management team, educate their workforce, and ensure that they have appropriate contractor language in place. She also encouraged Goddard to read the ASAP’s past reports, and wondered

how often people extend relevant information from the ASAP's reports to themselves and their own Centers.

## **GSFC FACILITY TOURS AND MEETING WITH GSFC EMPLOYEES**

Mr. John Marshall discussed the GSFC facility tours and the opportunity to meet with GSFC employees.

Mr. Marshall noted that this allows the Panel the opportunity to: meet face to face with the employees in their operating environments; get some hands-on appreciation; and view their culture, policies, and procedures as they have implemented and adapted them. He described the opportunity to view the Environmental Test and Integration Facility, which is a very unique facility in the NASA environment, due to their specific types of equipment. This facility allows Goddard to maintain state-of-the-art environmental testing to emulate the harsh operating environment of space with the rigors to ensure it is properly designed, outfitted, and maintained. The Goddard environment focuses on three major testing areas: mass properties, magnetic, and electromagnetic. Space simulation was particularly interesting, and we looked at three tests that were underway and have long-term applicability. The Pluto-Kuiper Belt New Horizons Mission will be launched in January 2006, but will not arrive at the operational destination until July 2015, and will be exposed to a harsh environment for the entire 9 years of space travel. The Panel had an opportunity to see the vibrations testing area, which included a dexterous robot that will be used in an exploration vehicle pathfinder. Last but not least, the Panel looked at the "cleanroom" used for Hubble Space Telescope. He also noted that they have good centrifuge testing capabilities.

Mr. Marshall closed by saying that his overall impression is that Goddard is a world-class organization, performing key and important testing that provides for the survivability and long-term success of NASA's Space Exploration program.

## **GSFC MAJOR PROGRAMS AND PROJECTS**

Major General Rusty Gideon discussed Goddard's major programs and projects.

Major General Gideon summarized the examples of good science that Goddard is doing, which currently include 79 major missions in formulation, implementation, and 45 of those in operation. Goddard has launched 281 missions in 46 years with a success rate of 97 percent. The best thing that they do with respect to management is contracting most of the program/project development and operations with Goddard managing those activities. One thing that they do to keep their skills sharp is to always have at least two projects being developed in-house. The Panel received a briefing on Goddard's satellite development and operations for the following missions: Solar Dynamics Observatory, Wilkinson Microwave Anisotropy Probe, James Webb Space Telescope, a few Earth science missions, and the Hubble Space Telescope and associated servicing missions.

Major General Gideon closed by saying that Goddard is doing a lot of really interesting work at the Center and they have a good handle and fantastic record on their major programs and projects.

## **PLANNING FOR LAST SHUTTLE FLIGHT**

Dr. Austin Esogbue discussed the Panel's meeting with Mr. Robert Lightfoot and the ASAP review of his briefing regarding "Planning for the Last Shuttle Flight."

Dr. Esogbue's observations regarding the briefing included the following:

- the program is in the planning phase
- they are looking for feedback/input, from any source possible, that addresses how other agencies have successfully transitioned major programs
- they are using NASA's Core Values as the guiding principles
- the emphasis on the Space Shuttle Program is on mission execution and the transition
- the Program Office tries to maintain a balance between the need to maintain a robust program, safely complete the International Space Station assembly, and reasonably plan for program termination
- they made some top-level assumptions leading to a successful transition that included the following:
  - this is uncharted and has not been done before
  - has emotional dimensions
  - could be quite expensive because key flight infrastructure elements are geographically dispersed (11 major sites in 9 states)

The Transition Panel at the Integrated Space Operations Summit (ISOS) III Conference in Nashville was a major component and important event that thrust Shuttle transition onto center stage in order to deal with the concerns/issues. The Transition Panel found indicators showing how important the Shuttle is in the lives of so many groups. The Shuttle Program accounts for 34 percent of the total NASA budget, causing the program to plan with great care and thoroughness.

During the ISOS Conference, the Transition Panel indicated that one of the most important steps was to assign a Space Shuttle transition manager. Dr. Esogbue indicated that this activity is complete and the transition manager is now Mr. Lightfoot.

The list of activities that have already been scoped include:

- the exploratory phase, which is complete and revolves around benchmarking activities and best practices reports
- the planning phase, which is underway and involves strategic assessments of the Space Shuttle Program needs
- trying to engage all stakeholders, developing baseline program requirements, and establishing planning in key areas

- the implementation phase needs to take into account the final International Space Station configuration, number of Shuttle flights, Exploration system requirements, and their pull on the Shuttle assets and workforce

They've made progress and outlined a set of criteria that will be used to measure the success of the transition process.

In summary, they keep four things in view at all times: setting priorities, completion of the mission, a plan that will take place in a timely fashion, and the cost and schedule issues.

Dr. Esogbue made observations on the presentation that indicated the following: they seem to have planning for the last Shuttle flight under control, they have made progress, and they are taking steps in the right direction. They need to continue to identify best practices, since the Titan IV example doesn't seem to be necessarily a good benchmark. The process is evolving and helping to develop a useful model for transitioning. They have also investigated a National Academy of Public Administration (NAPA) report on 31 government transitions that could prove be useful to them.

## **iTA UPDATE & ACTION ITEM STATUS**

Mr. Steve Wallace discussed the Panel's review of NASA iTA.

Mr. Walt Hussey from the NASA Chief Engineer's Office briefed the ASAP on progress that NASA has made in implementing iTA.

As a former member of the Columbia Accident Investigation Board (CAIB), Mr. Wallace has watched the progress of iTA very closely. He feels that this is the recommendation that comes closest to addressing the cultural issue and providing checks and balances. It has been a bit of moving target, and remains that way. It got off to slow start but has been turned around, and the Panel is happy with the iTA. Now it's in the middle of another change with the new Administrator, Dr. Griffin, shifting it back to put responsibility on Centers. It looks like there are still strong measures to keep the technical authority independent by being in the Centers, but separated from programs. Chief Engineers approve the selection of warrant holders, the implementation plan, pay salaries, and have a lot of safeguards to protect the independence. We have identified it as a topic that we will continue to maintain a clear focus on. In our meeting with Dr. Griffin yesterday, he also asked that we keep an eye on this, but noted this it is in transition and asked us to watch as it evolves over the next few months.

Vice Admiral Dyer noted that the iTA is important to this Panel because it is the process answer to a question that often comes on the way to launch, both manned and unmanned. That is, when everything is not perfect (and it never is), how do you get the answer to the following question: Is it OK? The iTA will now be able to give their assessment. It is also

fundamental to good checks and balances; therefore the Panel is interested and will stay focused.

Major General Gideon stated that he thinks that it indicates a cultural change. Vice Admiral Dyer closed this topic by stating that it will shift the culture in a positive direction.

## **NASA'S INTEGRATED PLAN FOR CULTURE CHANGE AND ORGANIZATIONAL EFFECTIVENESS**

The new Administrator has been at NASA four months and has made a number of changes to the Headquarters and the Agency. The ASAP was provided a status of ongoing efforts and an update about new ones. Dr. Amy Donahue discussed a series of NASA Headquarters based topics that included: Program Analysis and Evaluation (PA&E); Strategic Management Handbook/Clarity Team; OneNASA; core workforce competencies; and culture change.

The first topic was Strategic Management, briefed by the Associate Administrator, Rex Geveden. Mr. Geveden described a new strategic management process that suits this Administrator and the structure of his organization. In particular, Mr. Geveden explained two initial steps taken to revise the process: 1. The development of a description of the process that the Agency plans to use for planning every three years, and 2. articulation of principles which will guide this process. He also explained that the Administrator was concerned at the proliferation of guidance and oversight boards/panels at NASA and has consolidated these to three governance boards. Finally, he explained that Centers and Center Directors will now report directly to the Administration instead of through the Mission Directorates. Rather than directing programs, Center Directors will host programs and ensure adequate technical and engineering expertise is provided to those programs.

The PA&E effort directed by Dr. Scott Pace is an effort to inform decision making and not a decision making authority in its own right. It is concerned with the idea of organizational readiness. This will help the Agency understand whether people in the field can actually do the job that they are asked to do; particularly with respect to the Exploration vision.

Dr. Pace also talked about the culture change which has been ongoing since the Columbia Accident. There had been an ongoing behavioral sciences activity. The Administrator suspended much of this work, although some is ongoing. According to Dr. Pace, the goal is for the Agency itself to be able to make effective and thoughtful; decisions, and to be vigilant about whether the Centers are providing the proper environment for employees.

The Panel was also updated on the OneNASA initiative. The agency believes that the obvious "low hanging fruit" concerns have been addressed. The remaining burden is to



reduce transaction costs, friction, and bureaucratic barriers, so that Centers can operate and collaborate together more easily.

Finally, the panel was updated on concerns about whether the workforce is configured properly to handle current missions and to take on emerging missions. Especially as the agency transitions from the Space Shuttle Program to the Crew Exploration Vehicle (CEV), the Agency needs to ensure it can obtain and retain the skill base it needs. NASA has done an agency-wide assessment of its core competencies, and some assessment of the health of those competencies. It seems to the ASAP that two key issues are prominent: One is sustainment--How can NASA sustain and balance its required competencies agency-wide? NASA is clearly aware of this concern. The second issue is strategy--What are the needs and where are the gaps, and what strategies is the Agency developing to fill them? NASA has not yet addressed this concern.

### **DINNER WITH GUEST SPEAKER: DR. JAMES COLVARD**

Ms. Deborah Grubbe discussed the dinner that the Panel had with Dr. James Colvard.

Dr. Colvard, a fellow of the National Academy of Public Administration, was the leader of a report titled “NASA: Human Capital Flexibilities for the 21<sup>st</sup> Century Workforce” and the effort to look at this aspect. He focused his report on the recruitment of people to NASA, the retention of people at NASA, and the mobility or transfer of personnel. One way to increase learning is to move them to another Center so that they see other ways of doing things and other types of technologies and applications for their skills. One of the key takeaways from the dinner was that the leadership must take an active interest and spend time in the development of its workforce, just like the leadership of the organization must take an active interest and spend time in the leadership of safety. The idea of leadership being actively engaged in the development of the next generation of technical talent is very much needed. The second point that Dr. Colvard made was that there are several ways to do this, but an effective way that he has learned and works well in the civil service environment is leadership taking an active role in developing the top 10 to 15 percent of the organization. Ms. Grubbe said the uniqueness of this from her experience in corporate life is that it is not just the top 10 to 15 percent of the top level of the organization—it is the top 10 to 15 percent of every level in the organization. She felt that this is a unique way to get a cross cut of the talent and helps leaders identify the talent gaps at every age and experience level. This really helps drive the point home through personal experience and discussion of what kinds of things are needed for the organization to be successful in the future.

### **STAFFORD COVEY RETURN-TO-FLIGHT TASK GROUP**

Major General Gideon discussed the meeting with the Stafford-Covey Return-to-Flight Task Group.

Major General Gideon opened by summarizing the Task Group's closeout activities in July that were followed by the successful launch of the Space Shuttle Discovery Return-to-Flight mission. As you might expect, there are many, many unfinished items. As a result of this situation, the Task Group made their final written assessments of the 15 CAIB (Columbia Accident Investigation Board) recommendations in the final report. There is much continued activity that is needed and they have published a list of the ongoing activities that they recommend continue to be monitored. He stated that the ASAP is very much interested in those items and had quite a bit of discussion amongst the Panel and with the Administrator. He stated that all of these items will be looked at by the NASA line management.

Vice Admiral Dyer said that all eyes at NASA are on the foam, and the resolution of that problem. While we are certainly interested in that issue, we are especially interested in how decisions will be made and risks will be managed, because it speaks to cultural aspects which are a high-interest item for the ASAP. It is the differentiation between line management and an advisory team that we are very keen to respect, but also to probe, check, and verify.

## **NASA ADMINISTRATOR**

Vice Admiral Dyer summarized the Panel's meeting with the NASA Administrator, Dr. Michael Griffin.

This was the Panel's first quarterly meeting with Dr. Griffin since he came back to NASA. Vice Admiral Dyer said that you can't spend much time with Dr. Griffin and not come away convinced that he is very, very technically competent and articulate, that he is both engaged and engaging, and you can make a very accurate case that he has prepared all his life for the position he now has. He has been an aerospace engineer and has worked in and out of NASA and the aerospace industry, and is now back with NASA for the third time. He is a man who is focused on, among other things, good speed—hurrying, but not rushing, to meet the objectives of the Vision.

He said those things that we both needed and wanted to hear with regard to the ASAP. The ASAP was originally brought into law by Congress as one of the two senior NASA advisory panels that are operated under the Federal Advisory Committee Act. He gave his commitment to us, individually and collectively, that we will have the access, the support, and the resources to provide good oversight in support of NASA and our tasking to report to Congress as well. He was upstanding in his charge to us to be independent, and used the term "free-ranging" to refer to the full and open access that we are to employ throughout all of NASA and the Centers. One of the most important commitments was access directly to the Administrator and dedication of his personal leadership time to work with the ASAP.

We started the work to develop the consensus as to where does the ASAP focus next, especially as Stafford-Covey moves off the scene. It is still a work-in-progress, but four areas were highlighted:

1. Risk management and risk assessment, including NASA's Approach
2. Cultural changes, cultural evolution, and leadership
3. Independent Technical Authority (iTA)
4. Integrated Systems Look at the NASA Workforce
  - Not just focused on contractors or civil servants, but focused on the job to be done and the full integrated resources to accomplish it. To look at things like: the NASA demographics; aging and retirement; knowledge (where it is resident and when it will depart); and gaps in continuity of engineering talents, hiring practices, professional development, etc.

He stated to the executive director that the Panel had previously shared in one of the earliest reports (by way of recommendation) a set of attributes and posed a set of questions that shared some thoughts (not in a directive fashion) that held up a mirror for the NASA iTA. The mirror said that a good iTA should possess these characteristics and attributes. He thinks that it is time, with the new administration, to share and reiterate those recommendations.

Mr. Williams added to the workforce point that the Panel should consider a recommendation to look for some outside verification or validation of the competency look that the NASA organization has just completed. Not because they have not done a good job—he thinks they have done an excellent job—but it wears the filters and biases that exist inside the organization, and an external perspective may be of value.

Vice Admiral Dyer responded that he agreed. He also said that one of the difficult challenges with regards to culture is that you are often asked “if you are making progress rightly, properly, and quickly” which is then followed with the question: well how do you know? We have to work together to figure out how to get an answer to that question. As Ms. Grubbe indicated, there are a number of resources to be investigated, but we certainly believe that the National Academy of Public Administration represents one of those tools that the Panel should look at as we proceed down that path.

## **MEETING ADJOURNED**

Vice Admiral Dyer adjourned the meeting and opened the floor to questions from the public participating in the meeting.

There were no questions from the floor.