National Aeronautics and Space Administration

AEROSPACE SAFETY ADVISORY PANEL
PUBLIC MEETING

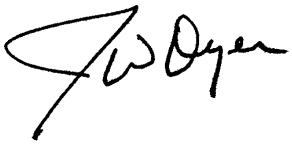
January 29, 2004

NASA Headquarters

Washington, D.C.

MEETING MINUTES

Mark D. Erminger
Executive Director



V ADM Joseph W. Dyer, USN (Ret)
Panel Chair

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Panel Attendees

V ADM Joseph W. Dyer, USN (Ret), Chair

R ADM Walter H. Cantrell, USN (Ret)

Dr. Augustine O. Esogbue

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. Mark D. Erminger, Executive Director

Panel Members not in Attendance

Dr. Rosemary O'Leary

B Gen Joseph A. Smith, USA, 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

Admiral Joseph Dyer introduced himself and welcomed the attendees. He stated that the Panel was in a learning mode. Sean O'Keefe, Bryan O'Connor, and Bill Readdy are very supportive of the Panel and spent a good deal of time with them.

Panel members introduced themselves and gave a brief summary of their background and experience.

OPENING COMMENTS

Admiral Dyer began the meeting by discussing three topics: the Charter, the "Three A's," and special interest items or "To-Do List."

Charter

The Charter, signed by Administrator O'Keefe on November 18, 2003, was derived from Section 6 of the NASA Authorization Act of 1968 following the Apollo 1 fire. The duties of the Panel include advising the Administrator on System Safety, Culture, Organization, Processes and Standards, Facilities and Operations, and Best Practices from industry. The Panel will hold four formal meetings per year with additional time for fact finding, as necessary. Administrator O'Keefe's charge was to determine if NASA is complying with what NASA says. The Panel is to provide institutional oversight and not focus on any unique activity. The Panel is to guard against imperceptible erosion of safety compliance that can happen over time and to carefully observe checks and balances among cost and schedule pressures vis-à-vis safety and technical authority. The Panel will control and steer the inquiries and will have NASA's full support.

The "Three A's" - Access, Accountability, and Autonomy

What is our Access? Administrator O'Keefe was quick to answer: "What you need, you get." The Accountability follows the "Corporate Board" model but focused on safety. The Panel will meet quarterly, assess and inform, apply a broad range of experiences from outside, and infuse best practices. The Administrator commits to follow through and provide feedback to the Panel. For Autonomy, the Panel is outside the day-to-day pressures of NASA. The Panel's strongest foundation for autonomy is the strong technical conscience, demonstrated personal integrity, and professional reputation of the members.

Special Interest Items

The first one is cultural change. The Panel is interested in further understanding how over time organizations can lose focus on safety.

The second is NASA leadership focus and dedication to safety. We feel good about what we've learned initially, but it is one that is absolutely necessary for full success.

The third item is knowledge retention as driven by demographics, an aging workforce, the experience base, contracting out, and recruitment.

Mr. Steve Wallace commented about new legislation authorizing NASA to offer retention bonuses and other incentives. There are large numbers of employees eligible for retirement. Some people may be staying until NASA is "back on its feet." The large number of contractor positions may be more attractive.

Ms. Deborah Grubbe observed that technical capability and retention were identified by NASA as a focus area to work on, and NASA started that work BEFORE the Columbia incident.

Mr. John Marshall said that the Panel's focus needs to be on the issue of organization and culture because it contributed to the accident and is the most difficult issue to address. The aviation industry has inherent risk and faces this every day. We know that schedule pressures will continue. Budget restrictions will continue. In the last couple of days, it is obvious that NASA understands that area will require constant attention.

Dr. Augustine Esogbue said that NASA is recognized for pushing the frontiers of knowledge in some scientific and technological areas, but the Agency will need to continue/develop relationships with some premier centers of knowledge to address areas with identified

deficiencies. As in most high tech organizations, there are also deficiencies such as the well known brain drain problem. NASA will have to establish effective mechanisms to address the knowledge acquisition and retention problem especially as experts within the organization begin to retire.

Ms. Grubbe said that there is a recognition that improvement is needed. There are some very strong foundational elements that can be built on and there is more integration required across NASA.

Admiral Dyer said setting out to balance safety with cost and schedule is one of the places where NASA has advanced the ball.

Mr. Rick Williams said that it is not intuitive as to how the organization fits together and it is something about which we will have to learn more.

Admiral Dyer said that the "One NASA" effort is to get better alignment, integration, and coordination across NASA's ten Centers. We don't fully understand it yet but we want to; the topic is listed for further research.

Mr. Wallace noted that NASA applied all of the Columbia Accident Investigation Board (CAIB) recommendations across the entire Agency beyond the Shuttle Program and developed a very thorough matrix, including all ten Centers.

Dr. Esogbue said that NASA is a very good example of a large complex organization and it will be helpful to integrate and coordinate activities to attain the goals of the organization. Systems engineering tools may prove especially helpful here.

Admiral Dyer identified the Stafford-Covey transition to ASAP as an important item of interest. We need to spend time understanding how ASAP will dovetail with Return to Flight. We also have a need for outside expertise on special issues. There is a large body of knowledge on High Potential Organizations. Knowledge of how to manage risk has really progressed across government and industry. We need to talk to the experts. One of the strengths of the Panel is the ability to reach such people.

The last identified item of interest is "What is it that keeps you up at night?" This is a question that Ms. Grubbe always asks.

An abbreviated summary of yesterday's fact-finding follows.

OCCUPATIONAL SAFETY METRICS AND PEP SURVEY

General Rusty Gideon summarized this discussion.

The Office of Safety and Mission Assurance briefed metrics and Performance Evaluation Profile (PEP) safety metrics that are captured in the Incident Reporting Information System (IRIS). There are three types of metrics: corrective actions as a result of a mishap, illness and injury data, and other items such as property damage, close call, etc. The results are available to Center leadership, the Enterprises, and the Safety Office. The Safety Office publishes summary data. Detailed data is only available at the Center level. PEP is a survey given to all employees. It is anonymous. It started in 1999 to help the Center leadership evaluate their safety program for

continuous improvement and is collected annually. Agencywide feedback is shared at an annual meeting of Safety Directors.

Out of that briefing came some issues:

- Metrics are not available across NASA because of privacy and contractual concerns. The Panel thought there should be a way to share the data.
- The Panel asked themselves if Occupational Safety was a valid topic for ASAP. The answer is "Yes" because it can be an indicator of organizational health.
- Schedule and Cost emphasis. Does that lead to an acceptance of higher risk?
- Are the metrics good metrics? We didn't have a chance to look into the details. This came down to best practices. Ms. Grubbe had a list of some of the best practices that came out of DuPont.
- Side issue of Safety Offices highlighted in the CAIB. The safety function should have direct line authority without being subservient to the program and should be resourced directly from Headquarters.

Mr. Marshall asked the question on where does occupational health fit in and is there any action being taken on the metrics. Is this a valid subject? Yes. It is part of the risk management process. How you do with the employees relates to how you do on flight safety. You need to look at your metrics. What gets measured gets done. We need metrics that look forward. This needs to be integrated so that you have a composite view of the health of your organization. This also needs to include contractors.

SERVICE LIFE EXTENSION PROGRAM (SLEP)

Mr. Marshall summarized this discussion.

This briefing was very informational and really started the hard-core dialog on the issues NASA is addressing. SLEP was started to provide a sustainment for the Integrated Space Transportation Plan. There have been two major changes since this started: the accident and the President's plan that dramatically reshapes the program. SLEP Summit II is next month. Three ASAP members will participate because it is very important to understand changes. The second component of the briefing discussed transition of the Return-to-Flight (RTF) process. The real issue is how does SLEP react to changes as a result of RTF. This is evolving and it is premature to comment.

The last part was the prioritization process and ranking. It started out sustaining to 2022 and now it is 2010 but that date is flexible.

ASAP had a number of questions for the briefer. What is the weakness of the process? They need a numerical way to give a return on investment so that you can differentiate between options and get the most bang for the buck. The second is the handoff between CAIB, Stafford-Covey, and the Panel. The last issue was questions on organizational matters. SLEP is hardware and software focus on issues. The RTF Board will capture issues on a holistic sense. SLEP is a Strategic Planning process for long-term investment to ensure safety of Shuttle missions in the future.

Mr. Wallace said that the CAIB recommended the Space Shuttle Program be re-certified if operated after 2010. If the CAIB knew the Space Shuttle would sunset in 2010, CAIB would

have asked NASA to lay out a plan to ensure Shuttle safety does not deteriorate leading up to 2010. General Kostelnik told us he intended to put down three healthy vehicles.

Admiral Dyer said that it is always harder than you think and you always fly longer than you expect. It takes real discipline and real focus to continue to make the investments in safety of the sunset program when the dollars to deal with the future are wanton.

INTERNATIONAL SPACE STATION (ISS) CONTINUING FLIGHT

Dr. Esogbue summarized this discussion.

One characteristic of NASA is that the programs are highly visible. The International Space Station and the Space Shuttle are good examples of such high profile programs. Both are interrelated and managed under one Deputy Associate Administrator, but the ISS Continuing Flight is highly dependent on the Space Shuttle. The ISS Continuing Flight briefing was particularly interesting for it addresses an ongoing program. The ISS group conducted an in-depth analysis of the CAIB Report to see how the recommendations and observations impacted their activity. Prior to Columbia, a program was put in place to manage cost and risk. It is important to recognize that the Space Station is an on-going effort. A key question is "What are the effects of grounding a component of the Space Station?" The strength of the international partnerships and lines of communications were emphasized as key to keeping the program in place. The safety of the crew and vehicle is a concern and a major challenge. Space Station has developed an Implementation Plan to respond to the CAIB. The plan is not stagnant but is being continuously updated. Similar to other units within NASA, the group identified the CAIB recommendations that applied as well as those that did not apply. The status of the plan has been widely distributed to various stakeholders and, in particular, published on the NASA public web site.

Space Station reported that it has in place the organizational framework and team to stay on course and get inputs from various technical and discipline experts. The team is able to respond to most problems that may arise. When asked how they dealt with issues not raised in the CAIB Report, ISS replied that it has a continuous improvement plan that goes above and beyond the CAIB Report with safety as an imperative. ISS stressed that it considers continuing safe day-to-day operations a top priority. Further, there is a need to determine closeout criteria for each CAIB recommendation and observation. Some of the group's on-going and future work includes determination of closeout criteria, review of program prioritization, and assessment of other sections of the CAIB Report. It is understood that there is a need to maintain an interface with ASAP as appropriate.

A number of issues were pointed out. For example, how does the group properly address safety issues including reliability and sustainability for systems that are not yet fully developed or well understood? The group is aware of this and are working on it.

Admiral Walter Cantrell said that the Columbia accident created a whole new set of problems requiring extensive change to the ISS plan of a year ago. The ISS Program worked with the international partners to adjust. Coping with the number of changes and challenges to keep the ISS operational has been a tremendous accomplishment.

NASA ENGINEERING AND SAFETY CENTER (NESC)

Mr. Williams summarized this discussion.

The NESC new organizational charter was approved in August 2003 and NESC started in November of last year. NESC has a core group of discipline experts distributed across all ten Centers and has the ability to pull additional resources to work on tasks. The purpose is to coordinate and conduct robust engineering and safety assessments. NESC has already had a number of customers and has investigated and documented dissenting opinions. The rotational assignment is intended to expose a large group of engineers to developmental assignments. We discussed that NESC is not the solution to CAIB 7.5.1, but could serve as a resource to assist that function. There are multiple entry paths to identify concerns. There is a process to do risk assessments to prioritize NESC work, with the outcome subject to a peer review.

In general, the Panel was impressed with NESC progress. NESC shared several examples. One was an issue raised with a dissenting opinion. The employee was given a reward to reinforce that behavior and to give a visible message that this is the kind of organization to which NASA wants to evolve.

An additional issue was the reporting relationship of the NESC and the competition for resources.

The final discussion was on how NESC fits into the overall process of talent management or broadly managing a functional subject matter capability.

Dr. Esogbue said that the NESC was needed and had great potential. The problem poses other challenges in training and development. Very few schools in the country teach systems engineering today although efforts are being made to revitalize and redirect these programs.

Admiral Dyer said that his second career as General Manager of iRobot Corporation involves building a culture. This is a lot easier than changing a culture. He lauded NASA for giving safety a powerful seat beside the program manager with a solid institutional foundation behind it. That is one of the two key and essential shifts that must be in place to stand and go forward. He personally feels good about that. The second issue is how technical authority is exercised across all NASA. He doesn't yet understand how technical competency will reach all across the organization.

Mr. Marshall said that one of the challenges is how to institutionalize this for the long haul.

Ms. Grubbe said that constituencies need to be clearly identified. Employees with technical expertise that are not part of the NESC need to support it to make it successful.

Admiral Dyer said the technical authority and safety are closely tied together. Right after someone raises the issue of safety there quickly follows a technical debate.

General Gideon said that people must be able to see something to identify an issue. That must be a metric. Foam is a good example. It was a metric that wasn't responded to correctly.

Mr. Wallace said that the CAIB wanted to separate standards ownership from schedule and budget pressure. The safety voice was not independently funded and the program chose the degree of safety that it wanted.

Admiral Cantrell said that preserving the ability to bring technical resources to bear on the critical problems is the challenge. Establishment of achievable technical requirements and rigorous technical resolution of problems are the key to safe and reliable operations. NESC is a potential

source of this essential technical rigor. NESC is a high value resource. NASA is operating in a resource-starved environment. The high value resource may not necessarily be applied in the place where needed.

STAFFORD-COVEY TASK GROUP TRANSITION

Mr. Wallace summarized this discussion.

We briefly discussed the role of Stafford-Covey and the issue of continuity of oversight of implementation of CAIB recommendations. We have one member from the CAIB and two from Stafford-Covey. One of the undefined responsibilities is the role of ASAP in the longer term. Stafford-Covey disbands shortly prior to the next launch. The reasonably expected effort required cannot be accomplished by eight people meeting quarterly. This is a major concern remaining on the table.

AGENCY-WIDE ASSESSMENT OF THE CAIB REPORT

Ms. Grubbe summarized this discussion.

This topic also includes the "One NASA" effort. "One NASA" focuses on employee productivity, feedback, and culture and was begun before the Columbia accident. The results were merged and compared to the CAIB Recommendations. This effort goes beyond the Space Shuttle to all NASA employees and the NASA culture. The CAIB Report was distributed to all 66,000 NASA employees and on-site contractors. It was also discussed in face-to-face meetings. The Ombuds program is one recent result of the effort. The seven categories of this report aligned with the CAIB recommendations. This is a very good product, but it is too early to assess its impact. People need to decide how the results affect them. We would like to remain informed about the impact of this product.

CONCLUSION

Admiral Dyer offered one topic that had been overlooked and asked if there were more. In Mr. O'Keefe's charge to take a broad perspective, we were charged to focus on all space flight, not just human flight. There are three phases to this undertaking: near-term operations, mid-term exploration, and future exploration/technologies. We should look across all horizons.

Dr. Esogbue said there were issues to keep in mind such as the priceless contributions NASA makes to other sectors of the society at large. One example is patient safety that started in aviation safety and has even used NASA as a framework. For some continuing challenges facing NASA, there is a need to stay connected with centers of learning where new technologies, hard and soft, are being developed. One such example is the technology for handling soft data and including them in quantitative evaluation models.

Mr. Wallace reminded everyone that the Panel is a two-day old organization.

Mr. Williams said that, although it is early in our existence, there is clearly an obligation to help fix what was wrong.

General Gideon said that expectations and special interest items are right on target. The Panel probably would not find a detailed technical issue such as the foam. The Panel is here to look at culture, leadership, organization, and best practices. That is the value that we can add.

Admiral Cantrell said there is anxiety with the rate of progress toward establishing the Independent Technical Authority recommended by the CAIB.

MEETING ADJOURNED

Admiral Dyer adjourned the meeting and opened the floor to questions from the public who attended the meeting.