



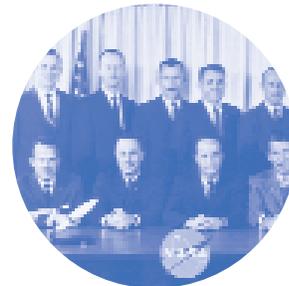
National Aeronautics and
Space Administration

ASAP

Aerospace Safety Advisory Panel



Third Quarter



National Aeronautics and
Space Administration

Headquarters
Washington, DC 20546-0001



Q-1

August 2004

The Honorable Sean O'Keefe
Administrator
National Aeronautics and Space Administration
Washington, DC 20546

Dear Mr. O'Keefe:

The Aerospace Safety Advisory Panel has held three quarterly meetings so far this year. Panel members also have participated in several key NASA activities such as a Space Shuttle Solid Rocket Motor test firing, a NASA Engineering and Safety Center Leadership briefing, an Intercenter Aircraft Operations Panel, the Service Life Extension Program Summit, a Stafford-Covey Return to Flight Task Group meeting, and a Shuttle Program Management Review. We stay informed on almost a daily basis of major activity taking place within the Agency.

It is with great pleasure that I submit to you our Third Quarterly Report for 2004.

Cordially,

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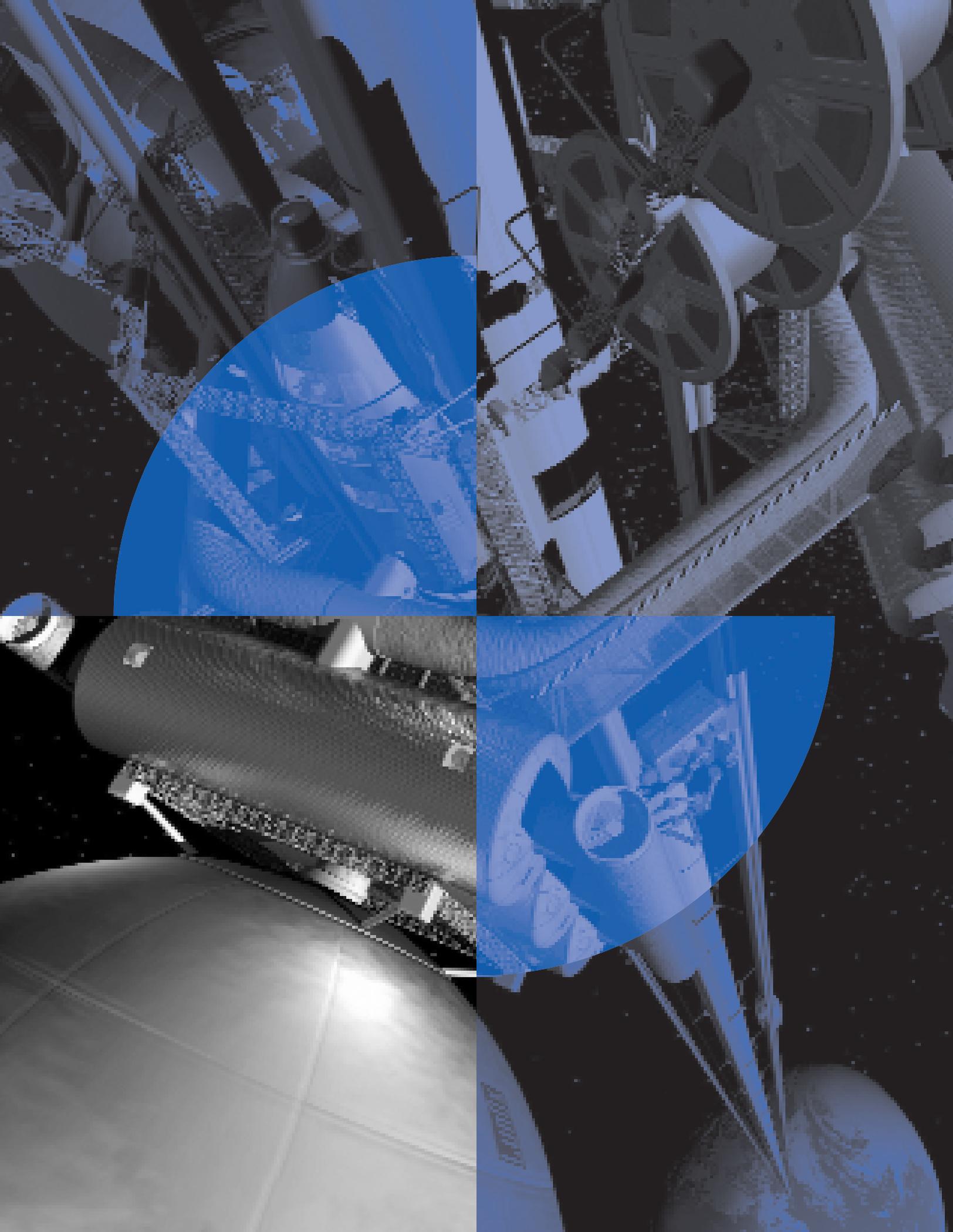
Joseph W. Dyer, VADM, USN (Ret)
Chair
Aerospace Safety Advisory Panel



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I. Introduction

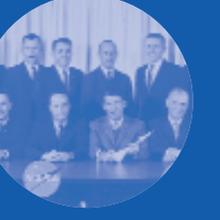
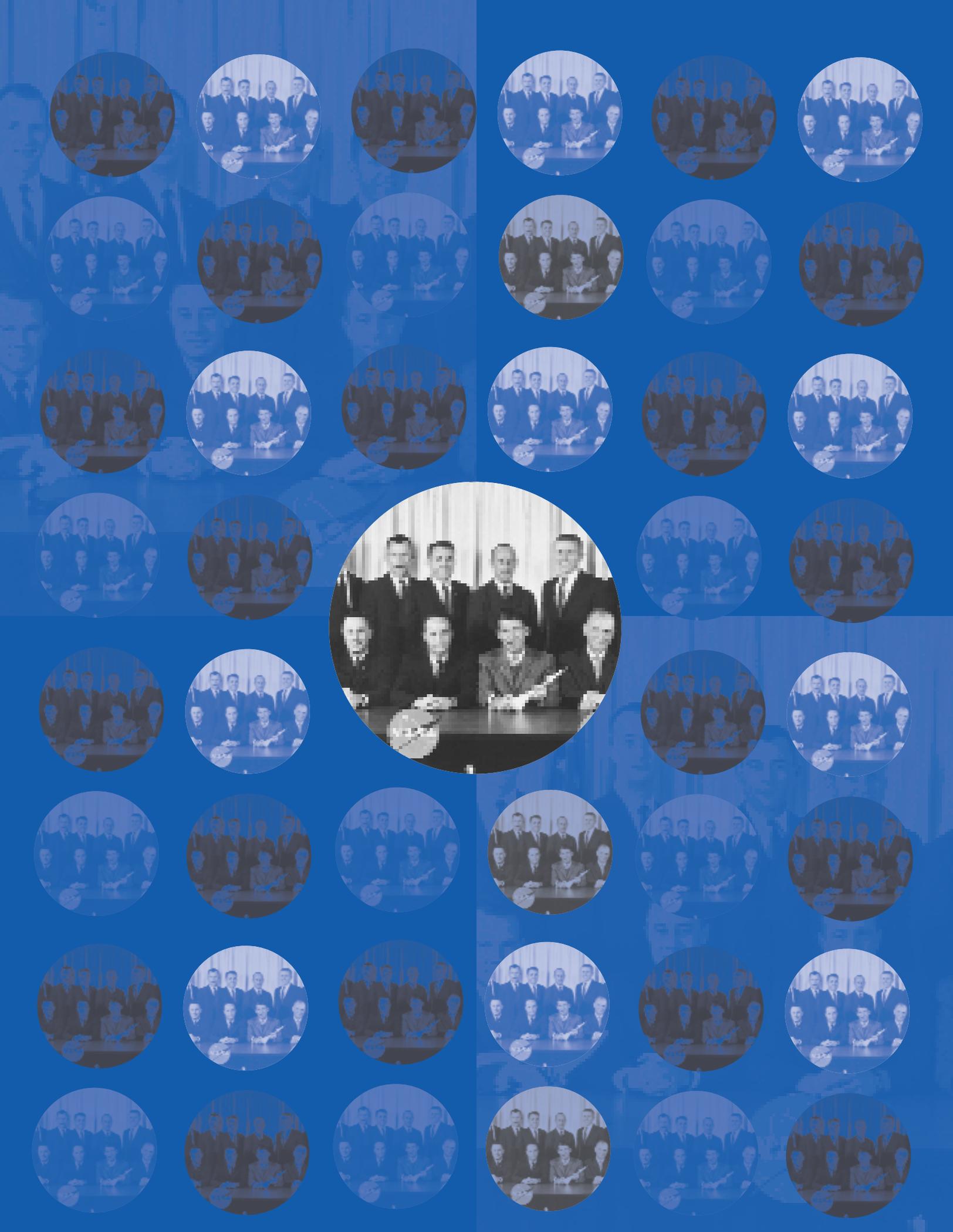




I. Introduction

This is the Third Quarterly Report for the newly reconstituted Aerospace Safety Advisory Panel. The NASA Administrator rechartered the Panel on November 18, 2003, to provide an independent, vigilant, and long-term oversight of NASA's safety policies and programs well beyond return to flight of the Space Shuttle.

II. Aerospace Safety Advisory Panel Membership Changes





II. Aerospace Safety Advisory Panel Membership Changes

Admiral Walt Cantrell stepped down from the Panel in June when he joined NASA full time as Deputy Chief Engineer for Independent Technical Authority.

On July 28, 2004, NASA Administrator Sean O’Keefe announced his selection of Dr. Dan Crippen to replace Admiral Cantrell as a member of the Aerospace Safety Advisory Panel.



Dr. Dan Crippen

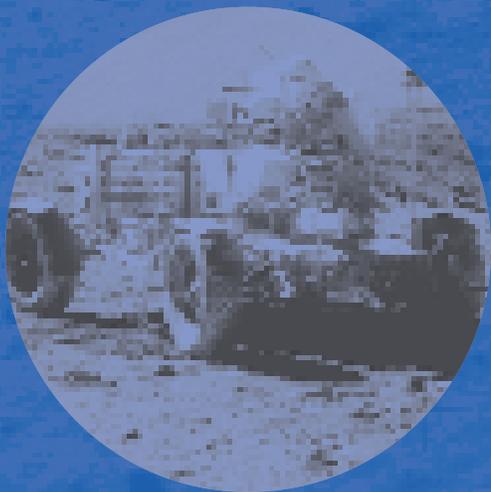
- Former Director of the Congressional Budget Office
- Member of NASA Stafford-Covey Return to Flight Task Group

Dr. Dan Crippen has a strong reputation for objective and insightful analysis. He served, until January 3 of this year, as the fifth Director of the Congressional Budget Office. His public service positions also include Chief Counsel and Economic Policy Adviser to the Senate Majority Leader (1981-1985); Deputy Assistant to the President for Domestic Policy (1987-1988); and Domestic Policy Advisor and Assistant to the President for Domestic Policy (1988-1989), where he advised the President on all issues relating to domestic policy, including the preparation and presentation of the Federal budget. He has provided service to several national commissions, including membership on the National Commission on Financial Institution Reform, Recovery, and Enforcement.

Crippen has substantial experience in the private sector as well. Before joining the Congressional Budget Office, he was a principal with Washington Counsel, a law and consulting firm. He also has served as Executive Director of the Merrill Lynch International Advisory Council and as a founding partner and Senior Vice President of The Duberstein Group.

He received a bachelor of arts degree from the University of South Dakota in 1974, a master of arts degree from Ohio State University in 1976, and a doctor of philosophy degree in public finance from Ohio State in 1981.

III. Third Quarterly Meeting Minutes





National Aeronautics and Space Administration

AEROSPACE SAFETY ADVISORY PANEL PUBLIC MEETING

July 29, 2004

**NASA Headquarters
Washington, DC**

MEETING MINUTES

A handwritten signature in black ink, appearing to read "Mark D. Erminger".

Mark D. Erminger
Executive Director

A handwritten signature in black ink, appearing to read "Joseph W. Dyer".

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

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

July 29, 2004

**NASA Headquarters
Washington, DC**

Panel Attendees

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

Dr. Dan L. Crippen

Dr. Augustine O. Esobue

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

Mr. John C. Marshall

Mr. Steven B. Wallace

Mr. Rick E. Williams

Mr. Mark D. Erminger, Executive Director

Panel Members not in Attendance

Ms. Deborah L. Grubbe

Dr. Rosemary O'Leary

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

Admiral Joseph Dyer introduced himself and welcomed the attendees.

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

Admiral Dyer asked the attendees to introduce themselves.



Admiral Dyer outlined the topics to be discussed in the public meeting and then introduced individual Panel members to discuss each of the topics.

OPENING COMMENTS

Admiral Dyer said that the Panel will share their discussions and analysis from work seminars held on July 28, 2004. The Panel also will address some future work. He emphasized that it is important to do an effective job for NASA. The Panel needs to do work between meetings and not just quarterly. The Panel will assign teams of two to three members to research special topics.

EXPLORATION

The Panel noted strong leadership in Admiral Craig Steidle in terms of acquisitions strategy and the Rand approach he used very successfully on the Joint Strike Fighter. This is a very good approach to shape trade studies and the other systems engineering and integration pieces. The Panel's assessment is that Exploration is off to a good start.

ALCOA

Mr. Rick Williams has been working with the Panel to better understand Alcoa's model for accountability.

Mr. Williams stated that Alcoa was proud of the system they put in place. Line managers are accountable for safety performance. The analogy is that the managers drive the car, the safety professional is in the car, and the safety professional is the navigator. Every employee is accountable for their own safety. Enablers are management commitment, organization, training and education, measurement, and communication. The enablers are elements that are taught as expectations to all Alcoa leaders and are audited against as part of the Alcoa integrated audit process.

He discussed the three key elements that drive performance—standards process, audit process, and leadership. With respect to standards, Alcoa has an online Web-based process that identifies in great detail the requirements and descriptions for satisfying the standard, and also outlines the technical resources, technical contacts, and the standards owner.

The standards owner is the only person that can grant a waiver or a variance to the process. Auditing uses a model that includes self-assessment. Locations are provided with materials that they will be audited against based on the elements in the management system. Alcoa has an integrated process that uses a team to penetrate and verify minimum expectations around those standards. Line management is held accountable for the results and for providing corrective action plans. The final key element is leadership. Leadership starts with very high expectations from the Chief Executive Officer and flows down through the entire organization with specific accountability. There is a real-time safety performance program. At any time of the day you can see safety performance for any location around the world. It helps Alcoa maintain a constant focus on safety and health performance because that is a key to the system.

Admiral Dyer noted that Ms. Deborah Grubbe from DuPont briefed the Panel last quarter, and these two hallmark American companies have similar approaches with regard to safety. They are very data driven.

INDEPENDENT TECHNICAL AUTHORITY (ITA) AND SAFETY AND MISSION ASSURANCE (SMA) ORGANIZATION

Admiral Dyer stated that the Panel spent a good amount of time with the Associate Administrator for Safety and Mission Assurance and the NASA Chief Engineer.

Mr. John Marshall summarized the Panel's analysis.

Mr. Marshall said that the issues of ITA and the SMA organization are of great interest to the Stafford-Covey Return to Flight (RTF) Task Group and the Panel. The Panel talked to Mr. Bryan O'Connor and Mr. Theron Bradley and appreciated their candor. The Columbia Accident Investigation Board (CAIB) clearly identified four specific findings that apply to ITA and SMA. Three came out of chapter 7 and are not RTF. One that is RTF is discussed in the 9.1-1 action. In the ASAP 2004 Second Quarterly Report, the Panel requested more information on what "was," what "is," and what "will be" the state of the three applicable areas of ITA. The Panel asked



questions in six specific areas and had a robust conversation dealing with all of these areas. The Panel wanted to refresh where it was and what the Agency has told the Panel. It is very complex. It takes a great amount of thought. The fundamentals are there, but it requires additional work. The Administrator recently appointed a Deputy Chief Engineer for ITA, Admiral Walter Cantrell. The Centers are moving in the direction of establishing their programs now that the fundamentals are well along. In terms of funding, the Comptroller now has set up the service pool that allows these concepts to be brought to fruition. In addition, the NASA Chief Engineer is drafting a final policy on technical authority, and NASA expects it to be issued in August. The Panel still senses a Center-centric issue. There are a few areas that need to be tidied up, and NASA is working on them. A question the Panel had was, "How will this affect RTF?" The Panel was assured that all of those components for the first flight are being worked aggressively, would be available for first flight, and would not impact the ITA processes. The Panel recommends that the processes continue to be formalized. The issue is that interpretations need to be done on a consistent basis with application consistent between the Centers. Regarding the SMA community, Mr. O'Connor is confident his responses to 9.1-1 continue to mature and go forward. The NASA Engineering and Safety Center (NESC) has made a lot of progress and completed over 40 independent studies. Going back to 9.1-1, NASA is in the final stages of completing the documentation and presenting it to the Stafford-Covey RTF Task Group. The bottom line is that there is a lot of work that continues to mature. There are still some outstanding issues, but the issues are properly being addressed, and the plan will be brought to fruition.

General Rusty Gideon commented that the ITA is one of the important changes that will lead toward a cultural change in NASA.

Mr. Marshall said that the ITA is a fundamental issue and is extremely complex.

Admiral Dyer said that the Panel believes that it is a bellwether issue. The bottom line, "Is it OK?" The Panel believes that ITA establishes confidence in the balance of safety and risk mitigation.

OFFICE OF SPACE FLIGHT

Mr. Williams reported on General Michael Kostelnik's update on the Space Shuttle Program (SSP) and the International Space Station (ISS).

Mr. Williams said that General Kostelnik updated the Panel on issues from the last quarterly meeting, including oxygen generation, consumables, the exercise system, and an Extra-Vehicular Activity to repair the Control Moment Gyroscope (CMG).

The Elektron oxygen system is on the critical path. There is no spare Elektron on board. There are spare parts for the Elektron. If the oxygen system totally fails, NASA would begin the process to leave the ISS. There are other sources of oxygen on board. It is a situation that the Panel will continue to watch. The Elektron unit continues to function flawlessly.

In terms of consumables, the ISS is doing better than predicted.

The ISS crew was successful in repairing the third CMG. They have five functioning space suits and can still fly spares for the units.

It is important for the Space Shuttle to return to flight so that the ISS can perform its role.

The Panel also reviewed the SSP. December is the date to submit finalized plans to the Stafford-Covey RTF Task Group. Stafford-Covey is very aware of what the Agency is thinking on all of the actions. Resources have not been a problem to date.

Mr. Marshall commented on the ISS. There has been a lot of discussion about the risk of the changes driven by the space station, including the two-person crew versus the original concept. There is no question that this is not the desired configuration. The day-to-day activity including the risk and risk mitigation is very carefully being watched. NASA has communicated to the partners the steps that would be acceptable and those that would not be acceptable. NASA has expressed a clear commitment to



take the necessary actions to safeguard life. The technical issues are clearly being properly managed but will require a watchful eye. Mr. Marshall came away from the briefing with a very positive feeling on the commitment and the visibility of the key issues.

Admiral Dyer said that the ISS is not without risk, but the Panel is impressed with the level of detailed management and tracking. The Panel needs to be sensitive to the resources necessary to do that which needs to be done pursuant to good safety. It is the Panel's finding that sufficient resources are being applied.

INTERCENTER AIRCRAFT OPERATIONS PANEL (IAOP)

The Panel views the ASAP Charter to extend broader than the CAIB or Stafford-Covey, so the Panel spent time looking at Intercenter fixed-wing and rotary-wing aircraft operations. The public is familiar with ISS and SSP, but there is a lot more research flight test activity in NASA, and the Panel has extended their reach to include that.

General Gideon described the Panel's review of the IAOP. NASA has 10 Centers operating 85 airplanes. There are 45 different types of aircraft. The Panel questioned why operations are spread across all 10 Centers and why NASA has so many different airplanes. There may not be a direct safety implication, but there may be some budget savings. It is not up to the ASAP to try to second-guess the requirements for all of those operations at all of the Centers. The IAOP does a biannual review at each Center, and ASAP was invited to participate in any of the reviews. The IAOP meets semiannually. The IAOP described some of the recent issues that they reviewed, including Unmanned Aerial Vehicles, and ASAP thought those were good topics. Another issue IAOP is looking at is outsourcing aircraft operations and maintenance. On safety reporting systems, NASA has an excellent aircraft safety record. Last year there were no Class A, B, or C accidents, and NASA has not had any major accidents in several years. However, there are a lot of close calls and near misses that do not turn into accidents. It is necessary to have a reporting system so that all of that information can be shared among all of the people that fly airplanes. A good reporting system for those kinds of issues is needed. There are some good examples of systems in the civilian

world, and the military services and the Panel offered to share some of those best practices with NASA. Another issue is Crew Resource Management (CRM). CRM is a proven system to educate people involved in flight operations to assist one another in making good decisions while flying airplanes. The IAOP conducts semiannual compliance reviews. One of the issues is that airworthiness and flight-readiness reviews are not standardized across NASA. It is worthy of taking a look to see if an Agencywide standard is needed.

Admiral Dyer said that a tremendous amount of important NASA work doesn't get a lot of credit. The work at Langley Research Center on swept-wing fighter aircraft is an important national contribution. World-class aerodynamic flight test assets are resident at Langley and are an important part of what the Agency does.

KENNEDY SPACE CENTER (KSC) S&MA ORGANIZATION

Admiral Dyer introduced the next topic, the KSC S&MA organization. KSC had used an approach that was a different way of doing S&MA business. That was recently revisited and has come back into the NASA way of operating S&MA.

Dr. Austin Esobue led the discussion on KSC S&MA. To put everything into perspective, one of the major CAIB recommendations was to revisit culture with respect to safety and mission assurance. One aspect of culture was a recommendation for reorganization. KSC S&MA has undergone several pressures to reorganize as a consequence of several reviews. After Challenger, KSC was asked to have a more centralized S&MA organization. They were subsequently asked to decentralize. After Columbia, CAIB made a strong recommendation to consolidate. What would be achieved by doing this? The goals are to enhance program effectiveness, eliminate duplications, and also to be more supportive of safety-related activities. Other benefits were managerial and financial independence. The last issue was to ensure there was adequate staffing and resources. Putting that into perspective, what has happened? What progress have they achieved? This is a very complex task that required some degree of study and design to be done optimally. The planning phase started in October and ended in December 2003. The S&MA Director had to be selected and was



charged with organizing. The second phase was the actual implementation of the plan. Our briefing was on what has transpired between January and now. There was a lot of realignment of functions. The reorganization was completed on April 1. One highlight of the reorganization was that all S&MA functions have been consolidated and brought into one central organization. They performed a bottoms-up review. They also created an ombudsman position. The new framework has seven divisions reporting to the S&MA Director. The new Center organization structure is considerably realigned so that there are clear reporting lines of authority. The new S&MA Director has been working very hard to try to understand the basic problems that have been faced by previous directors. Most of the problems have been human-related problems. The KSC S&MA Director has been able to get assistance from other Centers. Most of the areas are moving along now. ISS/Payload Processing is one of the strongest divisions with hardly any problems. He is spending most of his time on the SSP and will spend more time in the area of Launch Services. The ITA function is spread across all of the divisions, not just in one.

CONCLUSION

Admiral Dyer discussed topics for further study.

The Stafford-Covey-to-ASAP transition is one of those areas. It is continually important that we do the transition right and don't lose knowledge.

The Panel was impressed with the level of management attention ISS receives, and this will continue to be a topic of interest to ASAP.

ITA remains a topic of interest until it is successfully implemented.

The Panel spent almost 2 hours with the Administrator and appreciated the direct support from him and the energy that he put into opening doors and being personally available to work with the Panel on its responsibilities to aerospace safety.

Mr. O'Keefe recommended that ASAP pay close attention to the quantitative information data on NASA cultural change. Is the NASA culture changing, and how do we know? That is a topic worthy of ASAP's focus.

The last item is data and metrics with regard to safety. The Panel was very impressed with the Alcoa and DuPont benchmarking and the robust data tracking that was presented to the leadership of those two organizations to establish the bonifides of good safety. The Panel believes there is an opportunity to do better in that regard, and that is a candidate focus area as well.

There will certainly be other areas of interest. The Panel won't be able to take them all on at the same time. These are the kinds of topics that the Panel is looking to spend more time on during the periods between meetings.

Mr. Wallace endorsed the selection of Admiral Cantrell to be a key player in the implementation of ITA. In addition to being a member of ASAP, he was a valuable consultant to the CAIB. Admiral Cantrell has a very clear picture of the Navy model of ITA.

Dr. Dan Crippen added that Admiral Cantrell was also on the Stafford-Covey RTF Task Group.

MEETING ADJOURNED

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

IV. Recommendations



National Aeronautics and
Space Administration

Headquarters
Washington, DC 20546-0001



Aerospace Safety Advisory Panel

November 22, 2004

The Honorable Sean O'Keefe
Administrator
National Aeronautics and Space Administration
Washington, DC 20546

Dear Mr. O'Keefe:

The Aerospace Safety Advisory Panel will be making five recommendations to you in our Third Quarterly Report.

1. Exploration—Continue to emphasize safety as a centerpiece of the Exploration Program not only to protect people and valuable equipment, but also to accelerate a renewed focus on safety across the spectrum from research and design through operations.
2. Aircraft Operations—Establish standardized procedures used by all NASA Centers to perform airworthiness certification.
3. Aircraft Operations—Establish a standard aircraft incident and irregularity reporting system to be used across the Agency and share the lessons learned with aircraft operations at all the Centers.
4. Aircraft Operations—Identify best practices within NASA and other similar Government and industry aircraft operations, and implement in the NASA aviation program. One best practice to consider is the commercial airline industry's Aerospace Safety Action Program.
5. Independent Technical Authority (ITA)—Expedite implementation of the ITA prior to Space Shuttle return to flight.

Cordially,

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VADM Joseph W. Dyer, USN (Ret)
Chair
Aerospace Safety Advisory Panel

cc:

Chief Safety and Mission Assurance Officer/Mr. O'Connor

Associate Administrator for Exploration Systems Mission Directorate/Adm. Steidle

Associate Administrator for Institutions and Management/Mr. Jennings

Chief Engineer/Mr. Geveden