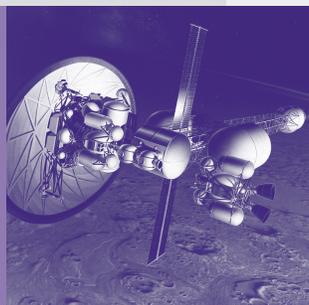
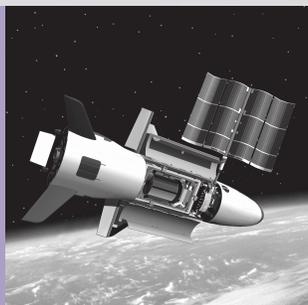


National Aeronautics and Space Administration



**Second
Quarter**

2005



ASAP
Aerospace Safety
Advisory Panel

National Aeronautics and
Space Administration

Headquarters
Washington, DC 20546-0001



Aerospace Safety Advisory Panel

July 2005

The Honorable Michael D. Griffin
Administrator
National Aeronautics and Space Administration
Washington, DC 20546

Dear Dr. Griffin:

This report includes the results of our second formal meeting in 2005. Panel members have also observed several key NASA activities such as the Return to Flight (RTF) Task Group Plenary Sessions, an Intercenter Aircraft Operations Panel review at Langley Research Center, and the STS-114 Flight Readiness Review.

We also met with key members of the RTF Task Group to discuss ways to ensure a smooth transition between the panels after the Space Shuttle returns to flight. We have agreed to actions that will ensure a smooth transition between the RTF Task Group and the ASAP. We will complete our handover from the RTF Task Group during our third quarterly meeting.

It is with great pleasure that I submit our first report to you, the Second Quarterly Report for 2005.

Sincerely,

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

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

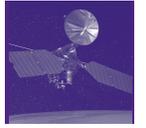
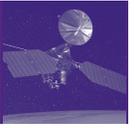


Table of Contents

I. Introduction.....	5
II. Second Quarterly Meeting Minutes.....	9
III. Recommendations.....	23

I. Introduction



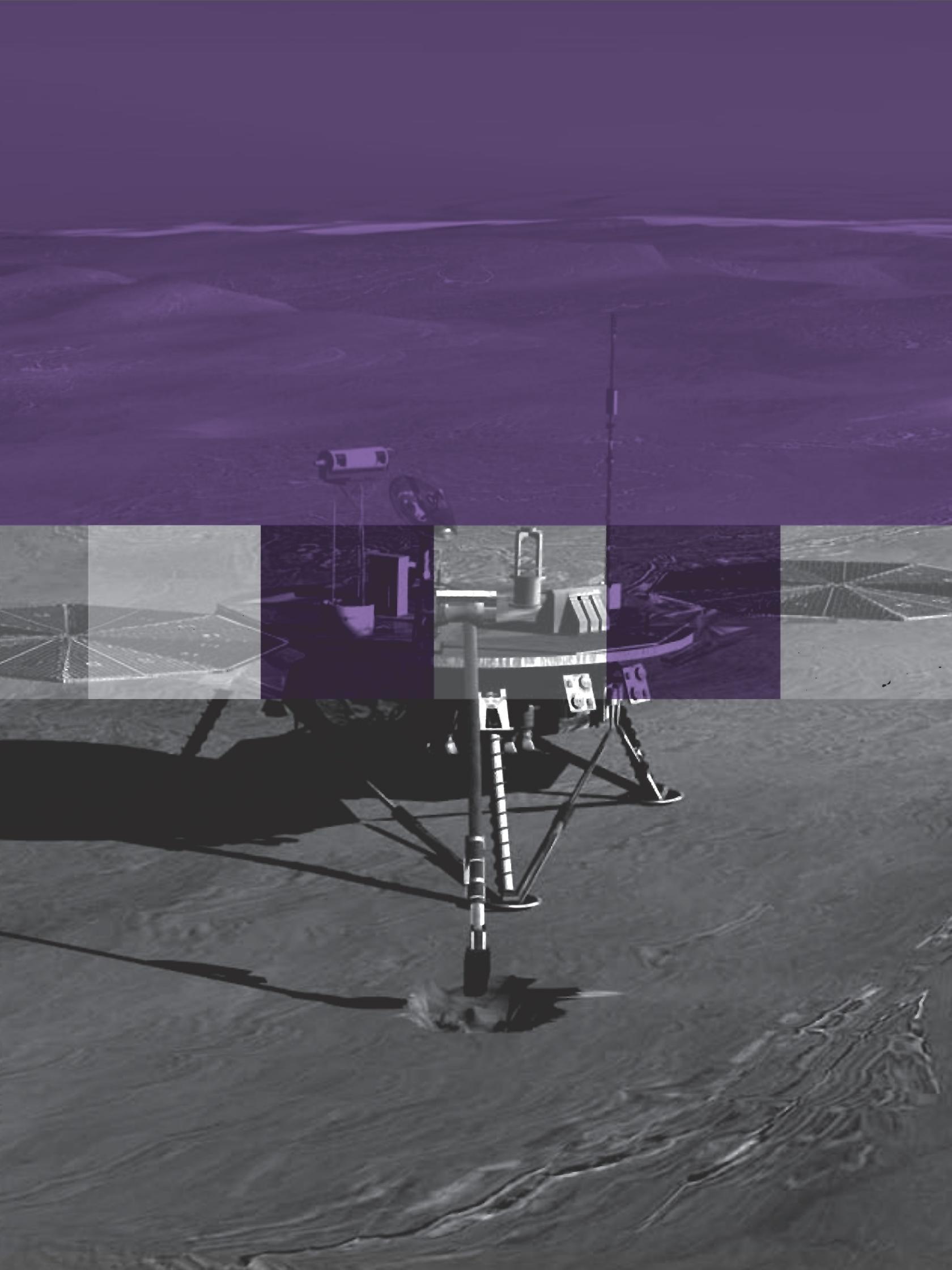


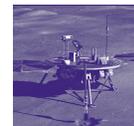
I. Introduction

This is the Second Quarterly Report for the Aerospace Safety Advisory Panel in 2005.

NASA chartered the Panel to review, evaluate, and advise on elements of NASA's safety and quality systems, including industrial and systems safety, risk management and trend analysis, and the management of these activities.

II. Second Quarterly Meeting Minutes





National Aeronautics and Space Administration

AEROSPACE SAFETY ADVISORY PANEL PUBLIC MEETING

April 7, 2005

Jet Propulsion Laboratory
Pasadena, California

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 "Joe Dyer".

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

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

April 7, 2005

**Jet Propulsion Laboratory (JPL)
Pasadena, California**

Panel Attendees

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

Dr. Dan L. Crippen

Dr. Amy K. Donahue

Dr. Augustine O. Esobue

MG Francis C. Gideon, Jr., USAF (Ret)

Ms. Deborah L. Grubbe

Mr. John C. Marshall

Mr. Steven B. Wallace

Mr. Rick E. Williams

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

Mr. Mark D. Erminger, Executive Director

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 and welcomed the participants.

OPENING COMMENTS

Vice Admiral Dyer summarized the ASAP visit to JPL by stating “Nothing succeeds like success.” Robotics is a core competency at JPL and technology will be a significant contributor to safety. The ASAP talked to JPL people who are planning for the future. A good example of this is the planning that the people working on the Deep Space Network have done to define the infrastructure necessary to thrive in the future.

Vice Admiral Dyer stated that the Panel members would be discussing workforce shaping, human resource management, program and project manager training, Independent Technical Authority (ITA), design practices and principles, the JPL safety program, and the handover between the Return to Flight (RTF) Task Group and ASAP. He noted that the Panel is very dedicated to the long-term review of subjects such as ITA, “One NASA,” and the safety culture which is the most important and longest enduring value. He also added that the RTF is being monitored by the RTF Task Group and it would be out-of-scope for ASAP to comment on work that NASA is doing which leads up to the first flight. However, the ASAP did observe substantive and positive action leading up to the first flight.

WORKFORCE MANAGEMENT

Dr. Amy Donahue discussed workforce management in NASA.

Dr. Donahue said that workforce management is a subject of particular interest to ASAP because of unique challenges, particularly ensuring that NASA's workforce is appropriately configured to support its mission. ASAP was briefed by Ms. Vicki Novak who is the Director of the Office of Human Capital Management in NASA. This was the ASAP's first opportunity to hear about this topic.

NASA's goal is to align workforce competencies to the needs of the exploration vision. NASA is facing the same challenges that private industry is facing in science, technology, and engineering. It has an aging workforce. This is particularly true in science and engi-

neering, which accounts for about sixty percent of NASA's workforce. NASA needs to determine how to maintain the appropriate skill base, how to assess future needs, and how future needs will be filled from outside the agency through recruiting efforts and also from inside the agency through a professional development program.

NASA has started a number of initiatives to address these issues. NASA has a robust leadership development program and has started succession planning, particularly for the Senior Executive Service positions. NASA has begun a process to define core competencies at each Center, is identifying their current capability, and is identifying the needs necessary to fill future gaps.

Most importantly, NASA sees a real need for an Agency-wide strategic human capital plan that is integrated across the Agency and can allow the Agency to think about its needs now and in the future. The ASAP believes a comprehensive workforce plan is very important and is certainly interested to hear about how that planning process progresses.

JPL OFFICE OF SAFETY AND MISSION SUCCESS (OSMS)

Mr. John Marshall discussed the JPL OSMS led by Mr. Matthew Landano.

It impressed Mr. Marshall from the beginning that mission success was in the OSMS organization name. That one statement reflects their commitment to the successful operation of JPL and everything that they do. He was also impressed with the number of people, almost 350, which represented a significant investment of capital and resources. The contribution the OSMS makes is evident in every single aspect of the mission successes that JPL has enjoyed. The OSMS is engaged at the beginning of every project and throughout the life-cycle of every project. They focus on supporting mission management, but they are also successful in maintaining independence from the project team so that they can give proper counsel and advice. It was also important that they are linked to every single project and not just the high value or high visibility mission projects.

In terms of components, like many other safety organizations within the Agency, OSMS has environmental health and safety functions as well as mission assurance functions.



The bottom line is that the OSMS is an independent and successful organization which focuses on safety as well as a very critical component of risk assessment.

As a final note, the OSMS program was the best of its kind that the ASAP has seen and is a direct reflection of the superb leadership at JPL.

RTF TASK GROUP TRANSITION

Dr. Dan Crippen discussed the transition from the RTF Task Group to the ASAP.

Dr. Donahue and Dr. Crippen are members of both the RTF Task Group and the ASAP in order to help facilitate the transition. There have been several discussions between the RTF Task Group and the ASAP, and there is a memorandum of agreement that addresses the concerns between the two Panels and how transition should happen. The memo discusses the need to have continuing vigilance with the RTF Task Group between the issuance of the RTF Task Group report and the launch of STS-114. The memo also discusses the transition, the passing of documents, and a final meeting between the RTF Task Group leads and the ASAP to transmit the RTF Task Group concerns.

During this meeting at JPL, Dr. Crippen and a member of the RTF Task Group staff briefly reviewed the 15 Columbia Accident Investigation Board (CAIB) recommendations, described where the RTF Task Group is on their fact-finding, and provided a forecast of what the RTF Task Group might recommend. They also reviewed some of the issues that the RTF Task Group might formally give to ASAP for further consideration.

Dr. Crippen stated that there will be more issues than ASAP has time to review, given its charter and resources. The ASAP will have to discuss priorities along with other on-going safety issues. The RTF Task Group will catalog their concerns and will highlight those items that need continuing surveillance. There will be a chapter in the RTF Task Group final report that discusses transition issues. The RTF Task Group and ASAP are making handoff a formal process.

Many of the mitigating actions NASA is taking for the first couple of flights are not planned to be carried much beyond the first few flights. NASA needs to be thoughtful about how they replace or supplement those technologies so that NASA and the ASAP can feel as comfortable about the third flight as they will feel about the first flight.

PROJECT MANAGER TRAINING AND DEVELOPMENT PROGRAM

Mr. Rick Williams discussed the JPL Project Manager Training and Development Program.

The ASAP was very impressed with what they saw. The training program grew out of necessity because JPL has grown from averaging 4 projects per year in the 1960s to an average of 37 projects per year today. JPL was challenged with developing a program that would help them scale up to that workload.

JPL started by identifying key characteristics of good project managers, they defined a core training agenda and developed a progression of career steps someone could take through multiple paths to obtain the skills to become a project manager.

JPL has developed a powerful project manager training website and provides additional training throughout the year. The cornerstone of their training program is an off-site session that is available to potential project managers and also other stakeholders such as partners and industry contractors. The training program is very intense and covers a series of important modules that weaves the thread of mission success.

The ASAP applauds the JPL program because it provides a consistent and standard approach to project management. NASA should look for more ways to share these kinds of programs across Centers where it makes sense.

NASA OFFICE OF SAFETY AND MISSION ASSURANCE (OSMA) BUDGET

Mr. Williams discussed the status of the OSMA budget that was briefed by the Acting NASA Comptroller, Mr. Doug Comstock.



Mr. Williams summarized that the Fiscal Year (FY) 2006 budget does have an increase over the FY 2005 budget and that important areas like independent funding for the ITA are being put in place.

OSMS SAFETY PROGRAM AND METRICS

Ms. Deborah Grubbe discussed the JPL OSMS safety program and their safety metrics.

Ms. Grubbe highlighted four areas of the safety program focus at JPL.

The first area is the environmental health and safety integration across the projects. The key to the OSMS success is that they are integrated with each project from the beginning, so there is always an environmental health and safety focus.

The second area of focus is contractor safety. The key element here is that there is zero tolerance for non-performance. This sets the standard that is extremely important because contractor safety can be your weakest link. You can't have good employee safety and poor contractor safety and expect that you will have good safety performance.

The third area of focus is non-flight support. There is a fair amount of critical infrastructure at JPL and that also has to be kept safe. There is a lot of work going on in that area.

The final area of focus is especially important and has to do with human factors safety and the human element of people working on Mars time or working long hours in preparation for key events in mission schedules. These are some very important and correct areas of focus and execution at JPL. The key is actual engagement and support from the leadership.

DEEP IMPACT AND MARS ROVER PROJECT STATUS

Ms. Grubbe described the Panel's review of the Deep Impact Program and the Mars Rover Program.

Since there has been so much said in the press, Ms. Grubbe did not go over the details of these programs. She is looking forward to the July 3rd Deep Impact collision with the comet, as well as seeing how long the Mars Rovers, Spirit and Opportunity, live. It was wonderful to see a program that was planned to live for 90 days go for over 400 days. That is a testimony to the engineering that prevents safety problems.

Competent personnel working on a competent plan will get very good results. The challenge is to make sure that can continue to be done.

JPL CENTER DIRECTOR AND JPL FACILITIES

Dr. Austin Esogbue discussed the Panel's meeting with the JPL Deputy Center Director, Lieutenant General Gene Tattini, and the ASAP review of facilities at JPL.

Lieutenant General Tattini's briefing set the stage for the ASAP to understand what goes on at JPL.

The ASAP reviewed some of the facilities at JPL including the Mars Lander Mission Support Area, the Deep Impact Mission Support Area, and the Robotics Facility Laboratory.

In the first two mission support areas, the ASAP saw people working and supporting the actual missions.

The highlight of the facilities review was at the Robotics Laboratory that featured a live demonstration of an on-line remote control of the next generation of robots being planned for exploratory missions. This demonstration included robots capable of climbing rocks without damaging themselves. Work in this laboratory is important to the realization of the President's Vision for Space Exploration, and JPL is on the right track.



FLIGHT PROJECT PRACTICES AND DESIGN PRINCIPLES

Brigadier General Joseph Smith discussed the ASAP review of JPL Flight Project Practices and Design Principles.

Brigadier General Smith started out by saying that the ASAP had excellent discussions at JPL that have been very positive. JPL has a lot to be proud of.

The ASAP asked a lot of probing questions.

JPL was directly affected by the Mars 1998 failure. Since that failure, JPL started monthly project status reviews, quarterly reviews, and a monthly report to NASA Headquarters that contains a technical problem database and an action item database.

The Flight Project Practices apply to all of the JPL projects. The compliance verification process is excellent. The strength of the Project Practices comes from the understanding of competing characteristics: personnel safety, reliability, cost, schedule, and performance.

Design principles apply across all flight designs. JPL has 40 years of capturing lessons learned. JPL uses the Engineering and Project Management Council to continually improve their design principles.

JPL reviewed the results of the CAIB and identified five actions to improve project practices and one action to improve design principles.

Brigadier General Smith summarized that Flight Project Practices and Design Principles are acceptable across the board at JPL.

ITA

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

The NASA Chief Engineer, Mr. Rex Geveden, briefed the ASAP on progress that NASA has made in implementing ITA.

As a former member of the CAIB, Mr. Wallace has watched the progress of ITA very closely. This was a very important CAIB recommendation and NASA got off to a shaky start. This was an early concern for the ASAP and no longer is.

The ITA is correctly focused now on the Space Shuttle Program (SSP) and the International Space Station. The CAIB recommendation only applied to the SSP, but NASA chose to expand ITA across all of the Centers. Mr. Wallace was satisfied that, although ITA was just getting started at JPL, it looks like it is going to be accepted.

NASA chose to make ITA an RTF issue, which was beyond the CAIB recommendations. As of March 17, 2005, ITA had 40 warrant holders in place and has made great progress on a number of changes. Mr. Geveden gave several examples of specific issues that he has become involved in and that was very encouraging. The ITA has become a sort of "hot line" for issues that weren't getting resolved through the normal chain of command.

The implementation of the ITA is a good sign of cultural change in NASA.

MARS EXPLORATION PROGRAM AND DEEP SPACE NETWORK

Major General Rusty Gideon discussed the Mars Exploration Program and the Deep Space Network.

The ASAP reviewed nine Mars missions that are in progress or are being planned between now and 2009. The Mars Rovers are surpassing all expectations. JPL is launching a Mars Reconnaissance Orbiter in August 2005 that will arrive at Mars in March 2006. The Phoenix Scout Mission is planned for 2007.

These programs are part of the NASA strategic roadmap. They are all integrated scientifically, and they build on each other's technologies.

The Deep Space Network provides interplanetary communication and needs a lot of emphasis. The network is handled by three antenna sites located around the world.



However, the antenna sites are getting old and are not up to the task of supporting deep space exploration. In the next 20 to 30 years, NASA will use optical communications, use planetary orbiters on Mars and the Moon as relay stations, and will replace the three antenna sites NASA has now with large antenna farms that will contain many small antennas.

Major General Gideon summarized by saying that there were many exciting programs at JPL and these programs and projects follow their flight project practices and design principles.

CONCLUSION

Vice Admiral Dyer concluded by saying that the ASAP view of “One NASA” is taking the best ideas and distributing them to all of the Centers.

All of the Panel members would agree that there are a lot of good ideas at JPL that can be shared with the rest of NASA. The Panel compliments everyone at JPL for helping make JPL successful, and it has been a pleasure for the ASAP to visit.

MEETING ADJOURNED

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

III. Recommendations



National Aeronautics and
Space Administration

Headquarters
Washington, DC 20546-0001



Aerospace Safety Advisory Panel

July 18, 2005

The Honorable Michael D. Griffin
Administrator
National Aeronautics and Space Administration
Washington, DC 20546

Dear Dr. Griffin:

The Aerospace Safety Advisory Panel will be making two recommendations to you in our 2005 Second Quarterly Report. Also, we recognize that you are making many changes in NASA, and we wanted you to know that a continual improvement in NASA's safety culture is very important to the ASAP. We look forward to learning more about your plans during our third quarterly meeting.

Our recommendations:

1. Exploration - Recommend the Exploration Program establish a formal process to compare the safety and mission success risk of performing logistics, maintenance, and other tasks with a human or a robot. Using robots can enhance safety and reduce the risk to astronauts.
2. Human Capital - Recommend that NASA make it a priority to develop a Strategic Workforce Plan. Having the right people with the right qualifications in the right jobs is central to all NASA endeavors, including safety.

Sincerely,

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

Joseph W. Dyer, VADM, USN (Ret)

Chair

Aerospace Safety Advisory Panel

cc:

Office of Program Analysis and Evaluation/Dr. Pace

Office of Safety and Mission Assurance Officer/Mr. O'Connor

Exploration Systems Missions Directorate/Mr. Cooke (Acting)

Office of Institutions and Management/Mr. Jennings

Office of Human Capital Management/Ms. Novak