

National Aeronautics and Space Administration

International Space Station Advisory Committee

**December 11, 2009
NASA Headquarters
Washington, DC**

OPEN MEETING REPORT



Original signed by

J. Donald Miller
Executive Secretary

Original signed by

Thomas P. Stafford
Chairman

NASA INTERNATIONAL SPACE STATION ADVISORY COMMITTEE

December 11, 2009
NASA Headquarters
Washington, DC

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MEETING REPORT

Dr. J. Donald Miller, Executive Secretary of the NASA International Space Station (ISS) Advisory Committee (AC), welcomed the participants and called roll. Dr. Miller introduced Lt. Gen. Thomas P. Stafford, USAF (Ret.), Chairman of the Advisory Committee, who then gave the following remarks:

Good afternoon and thank you for participating in this open meeting of the NASA International Space Station Advisory Committee. I'd like to start out by recognizing one of our outstanding members who will be leaving us after more than six years of exceptional service with the Committee. I'm sure you all got the word from Jim Lloyd that he will be retiring from his position as NASA's Deputy Associate Administrator in the Office of Safety and Mission Assurance after 40- plus years as a Civil Servant serving this country.

We have relied on Jim's in-depth experience in the safety community to guide us as we have worked with our Russian colleagues on ISS issues; his commitment and contributions to the Advisory Committee will be greatly missed. Jim, I thank you for your advice and sound judgment over the years and trust that we can still call upon you when we need guidance on issues that involve your particular expertise. Our next trip to Moscow will likely be early next year, so if you change your mind and want to brave another Russian winter with us, just let me know.

Thanks to all of you who participated in the recent fact-finding meetings we held in October. To review the areas that were covered in this assessment, I'm going to read from the report from the Committee's meetings at Johnson Space Center, where we met with the Russian Advisory Expert Council:

At the direction of NASA and Roscosmos management and outlined in letters of February 14, 2008, and March 12, 2008, the NASA International Space Station Advisory Committee and Roscosmos Advisory Expert Council Joint Commission met at the NASA Johnson Space Center, Houston, Texas, October 19-23, 2009, to continue the evaluation of six-person crew on the ISS with specific focus on crew safety and ISS six-person crew challenges.

The Joint Commission received briefings from the ISS Program on identified areas of interest, as well as presentations on the Space Shuttle Program and the Orion Program. The central focus of the meeting was risk to the ISS due to Micro Meteoroid Orbital Debris and logistics to support an ISS six-person crew following retirement of the Space Shuttle. The Joint Commission also discussed the transition to a six-person crew and the first six months of operations.

The Joint Commission has identified two areas of greatest concern. The first issue is related to a significant increase in orbital debris during the last decade and, consequently, an increased

threat for the ISS from dangerous orbital debris hits. The ISS Program believes that currently this threat is the highest risk for ISS safety. One of the least protected elements of the ISS is the Service Module -- due to various objective and historical circumstances related to the fact that it was designed and developed at the time when the MMOD situation was significantly different. Since Service Module depressurization from an MMOD hit may result in the loss of the ISS, it is urgent to augment its protection. The Joint Commission urges the top management of both Agencies to complete the effort that began in 2000 to develop adequate ISS MMOD protection as soon as possible.

The second major concern of the Joint Commission is that after the retirement of the Shuttle, ISS logistics become highly dependent on a number of yet unproven Commercial Resupply Services launch and delivery vehicles. Experience shows that the development of launch vehicles and spacecraft is almost never achieved on the initial schedule and subsequent delays have been significant. The delay or failure of any of these systems to become operational on schedule will adversely impact the ability to maintain six-person crew operations on the ISS and greatly reduce any science return. The delivery schedule of critical spares for the ISS currently assumes end-of-life in Calendar Year 2015. Additionally, any extension of ISS operations beyond 2015 could require replacement of large Line Replacement Units whose size, volume, or mass exceeds the capabilities of the existing fleet of logistics vehicles. Post Shuttle provision of critical spares necessary to extend life beyond 2015 becomes much more difficult. Therefore, the Joint Commission strongly urges NASA to pursue the development of the CRS vehicles rigorously and assiduously.

During ISS Increment 19 and 20, the ISS transitioned to six-person crew operations. The Commission observed that a satisfactory habitable environment, crew health, and performance have been maintained during this transition. The Joint Commission believes that it is very important to preserve the integrated approach to crew health and medical operations already adopted by the crew and medical community.

The Joint Commission recognized the ISS Program and the International Partners for the great efforts and accomplishments in the complex and difficult task of assembling and operating the ISS with an international crew of six.

The Joint Commission feels that it should reconvene again in Moscow at the earliest feasible date to review the progress of the MMOD risk issue. In preparation for that meeting, the Joint Commission will request additional information from those with programmatic responsibility for this issue.

That concludes the current report and summarizes the work accomplished by the Working Group during the recent meetings in Houston.

Given this report, do any Advisory Committee members have any questions? There were no questions.

Are there any objections to the report? There were no objections.

Fine, then based on our fact-finding meetings, the full Advisory Committee and Joint Commission concur with the assessment outlined here today.

Thank you all again for the expertise you bring to our committee.

CLOSING

General Stafford expressed his appreciation for the Committee's expertise and asked Dr. Miller, the Committee's Executive Secretary, to conclude the meeting.

Dr. Miller added his gratitude for the Committee's work on the assessment and adjourned the meeting at 1:15 p.m.

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Attachment A

ADVISORY COMMITTEE MEMBERSHIP

Chairman

Lt. Gen. Thomas Stafford, USAF (Ret.)

Members

Col. James Adamson, U.S. Army (Ret.)
Mr. Percy Baynes
Mr. Joseph Cuzzupoli
Dr. Charles Daniel
Dr. Michael Duncan
Dr. Daniel Heimerdinger
Maj. Gen. Ralph Jacobson, USAF (Ret.)
Mr. Jim Lloyd
Capt. Michael Lopez-Alegria, USN
Dr. Ronald Merrell

Technical Advisors

Maj. Gen. Joe Engle, USAF (Ret.)
Maj. Bob Maiberger, U.S. Army (Ret.)

Executive Secretary

Dr. J. Donald Miller

Asst. Executive Secretary

Ms. Holly Stevens

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Attachment B

MEETING ATTENDEES

Members

Col. Jim Adamson – via teleconference
Mr. Percy Baynes – via teleconference
Mr. Joe Cuzzupoli – via teleconference
Dr. Charles Daniel – via teleconference
Dr. Michael Duncan – via teleconference
Maj. Gen. Ralph Jacobson
Mr. Jim Lloyd
Capt. Michael Lopez-Alegria – via teleconference
Dr. Ronald Merrell – via teleconference
Lt. Gen. Thomas P. Stafford – via teleconference

Technical Advisors

Maj. Gen. Joe Engle – via teleconference
Maj. Bob Maiberger – via teleconference

Executive Secretary

Dr. J. Donald Miller

Asst. Executive Secretary

Ms. Holly Stevens – via teleconference

NASA

Ms. Rebecca Gilchrist, Office of General Counsel, NASA Headquarters
Ms. Meredith McKay, Office of External Relations, NASA Headquarters