National Aeronautics and Space Administration

International Space Station Advisory Committee

May 8, 2009
NASA Headquarters
Washington, DC

OPEN MEETING REPORT

J. Donald Miller
Executive Secretary

Thomas P. Stafford
Chairman

NASA INTERNATIONAL SPACE STATION ADVISORY COMMITTEE

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TABLE OF CONTENTS

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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 (ISS) Advisory Committee. To review the areas that were covered in this assessment, I'm going to read from the report from the Committee's recent fact-finding trip to Moscow, Russia, where we met with the Russian Advisory Expert Council to review the ongoing preparations to train crews and prepare the ISS for manning of a six-person crew scheduled to begin this month.

At the direction of NASA and Roscosmos management, outlined in letters of February 14, 2008, and March 12, 2008, the NASA International Space Station Advisory Committee and the Roscosmos Advisory Expert Council Joint Commission met at Korolev, Russia, April 21st through the 23rd, to continue the evaluation of six-person ISS crew -- which I will refer to as 6-PC from here on -- with specific focus on crew safety and the challenges to the ISS program in preparing for 6-PC operations currently targeted for May 2009.

The meeting opened with a comprehensive ISS Program Overview. The Joint Commission received detailed briefings by technical experts on the supply of consumables and concurs that the Program plan presented supports near-term ISS 6-PC requirements. Logistics for future operations rely on operational availability of new vehicles and will present risk.

The oxygen generation hardware and oxygen supply is adequate to support the initiation of 6-PC operations. The carbon dioxide removal systems at present are providing ample capacity to support 6-PC operations. The food stores and plans for re-supply are adequate to support the nutrition of a 6-PC.

The supply of water is ample for 6-PC. The new Water Recovery System is still in a check-out phase with every indication that it will ultimately meet all of its requirements. However, NASA reported the Potable Water Dispenser's ambient water does not meet NASA specifications due to the presence of a single, non-pathogenic bacteria. At the time of this review, a decision whether to permit consumption of the ambient water was still pending.

The environmental conditions on ISS are considered safe at the present time; in fact, there is evidence that air quality and the situation with the microbial contamination on the internal panels have improved.

Sufficient countermeasures hardware is present to support 6-PC operations. Final agreements on treadmill utilization and maintenance are pending. Scheduling adequate exercise for all crewmembers remains a challenge given current ground rules and constraints.

There is evidence of excellent cooperative medicine with clear understanding and protocols for crew health. No medical constraints are known for implementation of the ISS-20/19S mission. An interactive approach to planning and readiness to meet medical operations requirements and activities is even more important for 6-PC operations

The Joint Commission received briefings on the status of crew training at the Gagarin Cosmonaut Training Center and a general review of the crew assignment process for 6-PC. The transition of GCTC from a military to a civilian organization – and possible reduction in instructor staffing – should be closely monitored to preclude negative impacts to crew training. It is likewise considered important that the schedule for delivery of training materials, including simulator hardware and software, to GCTC be met so that crew training for the 700-series Soyuz vehicle can begin on time in July 2009.

Specialists on both sides are working hard to resolve the challenges inherent in providing cargo and supplies to support 6-PC. Among the difficulties encountered are slips in the launch schedules for Shuttle, HTV and ATV.

As stated in previous reports of this Commission on May 15, 2008, and October 17, 2008, there must be an understood and final agreement on flight rules and constraints that are based on the expanded crew size along with an agreed response defined for off-nominal situations that include fire, de-pressurization and contamination of the ISS atmosphere.

Mission Control Center-Moscow has adequately planned for the increase of personnel and facilities needed for 6-PC operations.

The Federal Aeronavigation Service is ready for initial 6-PC operations, although the long-term capability needs to be addressed.

The implementation of the plan for increased production for Soyuz and Progress vehicles has been difficult but is on schedule. A primary challenge is the acquisition and retention of highly-qualified personnel for the production of advanced vehicles which is being addressed. Improvements to manufacturing facilities are ongoing to meet the schedule.

The Soyuz pyro bolt failure analysis continues. The Joint Commission concurs with the plan to go forward until final resolution, which is expected in 2009.

The Russian Segment Central and Terminal (or GNC) computers that have malfunctioned, have been replaced on the ISS and returned to RSC-Energia for failure analysis. A test plan has been developed and failure analysis testing will commence.

In summary, we believe it is prudent to proceed with 6-PC operations. However, the Joint Commission believes it is extremely important that crucial documents concerning 6-PC be signed as soon as possible.

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

The Joint Commission agreed to meet again in Houston to continue its review of the above issues. In preparation for that meeting, the Joint Commission will request additional information on the above mentioned topics from the appropriate Program points of contact.

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

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.

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
Dr. Daniel Heimerdinger – via teleconference
Maj. Gen. Ralph Jacobson – via teleconference
Mr. Jim Lloyd
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

Mr. George Gafka, Chief, S&MA, ISS Program Office, Johnson Space Center
Ms. Meredith McKay, Office of External Relations, NASA Headquarters
Dr. Josef Schmid, Lead, Space Medicine Training; Flight Surgeon, Medical Operations Branch, Johnson Space Center

Others

Mr. Graham Gibbs, Canadian Space Agency Washington Representative