

**National Aeronautics and Space Administration**

**NASA Advisory Council Task Force  
on  
International Space Station Operational Readiness**

**April 16, 2003  
NASA Headquarters  
Washington, DC**

**MEETING REPORT**



*Original signed by*

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K. Lee Pagel  
Executive Secretary

*Original signed by*

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Thomas P. Stafford  
Chairman

**NASA ADVISORY COUNCIL TASK FORCE ON INTERNATIONAL  
SPACE STATION OPERATIONAL READINESS**

April 16, 2003  
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# NASA ADVISORY COUNCIL TASK FORCE ON INTERNATIONAL SPACE STATION OPERATIONAL READINESS

April 16, 2003  
NASA Headquarters  
Washington, DC

## MEETING REPORT

Mr. Lee Pagel, Executive Secretary of the NASA Advisory Council (NAC) International Space Station Operational Readiness (IOR) Task Force, welcomed the participants to the open meeting and called roll.

### Background

Task Force Chairman Lieutenant General Thomas P. Stafford, USAF (Ret.), presided and gave the following remarks:

*Good morning, and welcome. Thank you for participating in the Open Meeting of the NASA Advisory Council Task Force on International Space Station Operational Readiness. At the request of NASA Administrator Sean O'Keefe and Rosaviakosmos Director General Yuri Koptev, members of the Task Force Working Group held discussions last week with the experts from the United States and Russia to assess the safety and operational readiness of the International Space Station's Expedition 7 mission. Specifically, we reviewed the safety and readiness of the International Space Station, the health and flight readiness of the Expedition 7 crew, and the readiness of flight control centers in both Houston and Moscow. The Task Force Working Group received additional instruction from Mr. O'Keefe, following the Columbia accident, to examine the impacts to Expedition 7 due to the grounding of the Shuttle fleet.*

*Based on this review the Working Group found that:*

- *The Expedition 6 crew is medically certified for flight and fully trained to successfully perform their long-duration mission;*
- *The American and Russian flight control teams, in the Mission Control Centers in Moscow and Houston, are focused and ready to support the flight; and*
- *Although the International Space Station is safe and operationally ready to support the continued permanent presence of humans in space, the Working Group is concerned with the reduction in crew from three to two people, and with some other operations during this time that Shuttle is grounded. I'll discuss this in a little more detail later.*

*The findings of this report resulted from meetings in Houston from March 25 through March 28, 2003, and in Moscow from April 8 through the April 11, 2003. These meetings included discussions with experts from the International Space Station Program office, RSC-Energia, the Gagarin Cosmonaut Training Center (GCTC), the Central Research Institute for Machine Building (TsNIIMash), the Institute for Biomedical Problems (IBMP), and Mission Control Centers both in Houston and in Moscow. We received briefings on the following subjects:*

- *Crew Training Status*
- *Carbon Dioxide Removal Assembly Status*
- *Metox regenerative canister status*
- *Mission Control Center status, both Houston and Moscow*
- *Treadmill with Vibration Isolation System (TVIS)*
- *Acoustic Conditions on the International Space Station*
- *Briefings from Expedition 5 and 7 crewmembers*
- *Software status*
- *Search and Rescue plans for Expedition 6 landing*
- *Impacts of two-person crew and unmanned ISS*

*From these briefings, the Working Group concluded the following:*

#### *Crew Training*

*The Gagarin Cosmonaut Training Center and the Johnson Space Center both reported on the status of crew training for Expedition 7. No major issues were presented, and we believe the crew is trained and prepared for its mission.*

#### *Treadmill with Vibration Isolation System (TVIS)*

*The status of this system and other countermeasure devices was briefed to the Task Force Working Group in detail and discussed by the members. Although there are concerns about the robustness of the TVIS, some on-orbit spares exist and there are repair and refurbishment plans in place. Progress continues on the integration and certification of the Russian BD-1 as a backup to the TVIS. We encouraged both the Russian and U.S. specialists to continue their efforts in this area.*

#### *Acoustic Conditions*

*Acoustic levels on the International Space Station remain a concern to the Task Force. RSC-Energia specialists presented the current state of remediation plans for noise levels on the Service Module, but this schedule remains uncertain due to funding.*

#### *Impacts of Shuttle Grounding*

*The Working Group received briefings on operational plans for the period of time the Space Shuttle will be grounded. The loss of Shuttle support suspends assembly of the ISS for an indefinite time and degrades the capability of crew transport and re-supply. The modified baseline presented to the working group provides support for a crew of two with consumables being depleted by early 2004. At this time, based on the current, modified plan from the program office, the ISS would need to be evacuated until Space Shuttle flights resume. Although unavoidable, this plan results in significant increased risk to the operation of the space station due to:*

- *Reduction in crew safety in the event of a disabled crewman or contingency Extravehicular Vehicular Activity (EVA).*

- *Loss of robotic support during EVAs.*
- *Depletion of consumables to zero versus a 45-day margin.*
- *Single source of re-supply for consumables and spares (Progress).*
- *Increased possibility of having to operate the ISS without a crew.*

*We concluded that based on the modified baseline presented, unless Shuttle flights can be resumed this year (2003) an additional Progress re-supply flight would be required in late 2003. Within the ISS partnership, a decision must be made now in order to accelerate the production of Progress vehicles.*

### **SUMMARY:**

- *The briefings provided to the Task Force Working Group on the ISS and crew preparations, were comprehensive and complete. Responses to questions submitted by the Working Group resulted in open and candid discussions.*
- *It is the findings of the Task Force Working Group that the Expedition 7 crew is fully prepared to perform their long-duration mission, the ground facilities are prepared to support them, and the International Space Station is ready for their arrival and mission, although we have stated our concern with the status for re-supply and contingency scenarios while the Shuttle is grounded.*

General Stafford asked if any of the Task Force members participating in the Open Meeting had any questions. There were no questions and General Stafford requested that the Task Force members voice any objections they had with the Task Force Working Group's findings. There were no objections.

General Stafford stated that based on the Task Force Working Group's assessment, the Task Force believes that the Expedition 7 crew will be fully prepared to successfully perform their mission and the ISS will be ready to accommodate its newest crew by the scheduled launch date of April 26, 2003. Additionally, he assured all the participants that NASA and the Task Force members would be contacted immediately should any concerns develop as the launch date of the Expedition 7 crew nears.

In conclusion, he reminded everyone that a tree-planting ceremony would be held April 16, 2003, 1:30 PM Central Time, at JSC to honor each of the STS-107 crewmembers. General Stafford expressed his appreciation to the Task Force and thanked those in attendance for their participation in the Open Meeting. The meeting adjourned at 12:20 p.m., Eastern Daylight Time.

**NASA Advisory Council**  
**Task Force on International Space Station Operational Readiness**  
April 16, 2003  
NASA Headquarters  
Washington, DC

**Task Force Membership**

Chairman

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

Members

Col. James Adamson, U.S. Army (Ret.)  
Mr. Percy Baynes  
Dr. Kathy Clark  
Mr. Benjamin Cosgrove  
Mr. Joseph Cuzzupoli  
Dr. Charles Daniel  
Dr. Craig Fischer  
Mr. J. Milt Heflin  
Dr. Daniel Heimerdinger  
Maj. Gen. Ralph Jacobson, USAF (Ret.)  
Mr. Jim Lloyd  
Dr. Ronald Merrell  
Mr. David Mobley  
Dr. Shawn Rahmani  
Dr. Peggy Whitson  
Capt. John Young, USN (Ret.)

Technical Advisors

Maj. Gen. Joe Engle, USAF (Ret.)  
Mr. Mark Thiessen

Executive Secretary

Mr. Lee Pagel

Asst. Executive Secretary

Ms. Holly Stevens

NASA ADVISORY COUNCIL TASK FORCE ON INTERNATIONAL SPACE  
STATION OPERATIONAL READINESS

April 16, 2003  
NASA Headquarters  
Washington, DC

**Meeting Attendees**

Stafford Task Force Representatives

Chairman, Lt. Gen. Tom Stafford, USAF (Ret.), via teleconference  
Colonel Jim Adamson, USA (Ret.), via teleconference  
Dr. Kathy Clark – via teleconference  
Mr. Benjamin Cosgrove – via teleconference  
Dr. Craig Fisher – via teleconference  
Maj. Gen. Ralph Jacobson, USAF (Ret.) – via teleconference  
Mr. Jim Lloyd  
Dr. Ronald Merrell – via teleconference  
Mr. David Mobley – via teleconference  
Dr. Shawn Rahmani – via teleconference

Stafford Task Force Technical Advisors

Maj. Gen. Joe Engle, USAF (Ret.) – via teleconference  
Mr. Mark Thiessen – via teleconference

Task Force Executive Secretary

Mr. Lee Pagel

Task Force Asst. Executive Secretary

Ms. Holly Stevens – via teleconference

NASA

Mr. Scott Chandler, NASA HQ, Code M  
Ms. Debbie Rahn, NASA HQ, Code P

Others

Mr. Brian Berger, Space News International  
Mr. Keith Cowing, SpaceRef Interactive, Inc.  
Mr. Todd McIntyre – via teleconference  
Mr. Frank Moring, Jr., Aviation Week  
Ms. Patty Reinert, The Houston Chronicle  
Mr. Chris Shank, U.S. House of Representatives Committee on Science, Space  
Subcommittee  
Ms. Jennifer Troxell, DFI International  
Ms. Ersilia Vaudo Scarpetta, European Space Agency