

**NASA ADVISORY COUNCIL  
TASK FORCE ON THE SHUTTLE-MIR RENDEZVOUS AND DOCKING  
MISSIONS**

**March 12, 1996  
NASA Headquarters  
Washington, D.C.**

The NASA Advisory Council (NAC) Task Force on the Shuttle-Mir Rendezvous and Docking Missions met on March 12, 1996, from 2:30 to 3:10 p.m. in Room 5H46A at NASA Headquarters in Washington, D.C. Attachment A contains the agenda. Attachment B lists the Task Force members, NASA employees and members of the public in attendance.

Introductory Remarks

Lt. General Thomas P. Stafford, USAF (Ret.), Chairman of the Task Force, welcomed the Task Force members attending the meeting at NASA Headquarters and those participating via teleconference. Discussions focused on the STS-76 docking mission. The purpose of this meeting was to prepare a brief mission readiness assessment for General Stafford to submit to NASA Administrator Daniel Goldin and to generate recommendations for consideration by the NAC.

Hardware Delivery Delays

Due to the delayed launch of the Russian Priroda module, astronaut Shannon Lucid will not receive experiment hardware until April. General Stafford requested that this be highlighted in the letter to Administrator Goldin.

Mir-Priroda Docking

Dr. Michael Greenfield asked if there were any risks to Dr. Lucid associated with the Mir-Priroda docking, especially given the mass of the Priroda. General Stafford stated that procedures call for the cosmonauts to be in their suits during docking, however, Dr. John Fabian said that the cosmonauts do not always follow this procedure.

General Stafford pointed out that there are several bulk heads between Mir and the docking ports. Dr. Greenfield asked whether the risk factor for the Priroda-Mir docking has changed the safety procedures for the cosmonauts that calls for them to be in their suits. Mr. Gilbert Kirkham was asked to discuss this issue with the program office.

Training

Major General Joe Engle, USAF (Ret.) stated that there is a continuing problem with delivery of translated experiment Flight Data Files (FDF). General Stafford requested that this issue also be highlighted in the Administrator's letter. Dr. Craig Fischer said that the execution of the experiments could be improved if dual languages were used in the FDF (for example, one side printed in Russian, the opposite side printed in English).

### Tail Forward Approach/Docking

General Stafford outlined the "tail forward docking approach" to be used on the third Shuttle-Mir docking mission. This approach requires a 180 degree yaw maneuver with low-Z inside the 1000 ft. range. General Engle cited that this was a change to the normal nose forward approach in order to meet a Russian request for unobstructed television and radio communications. Dr. Greenfield asked if CDR Chilton was sufficiently trained and fully certified even with the late change in the maneuver. General Engle said that the changes were not really late and that CDR Chilton felt that he had adequate time to practice them in the simulator and felt comfortable with the maneuver. CDR Chilton saw that initially he was burning a lot of RCS fuel but had the time and training to develop procedures to reduce fuel expenditures. Dr. Greenfield expressed concern that the training process might have been rushed. General Engle said that he had no indication from CDR Chilton of the process being rushed.

### Docking Module Hooks Unlatch

General Engle said that the Russians requested unlatching the hooks on the U.S. side of the docking module (DM) while STS-76 is docked to the Mir. This would allow the Russians to separate the Mir from the DM in the event of a contingency. General Stafford pointed out that there are no structural or loads concerns connected with unlatching the DM hooks on the U.S. side. General Engle noted that the Phase 1 Program had decided that while it had no objection to this request, there was insufficient time to prepare for unlatching the U.S. DM hooks on STS-76, and that this procedure could be performed on STS-79 instead.

### Logistics Transfer to the Mir

General Stafford noted that this mission will carry the largest quantities of logistics thus far and that stowage is increasingly a concern. General Engle said that the Program is adequately addressing this issue citing that great progress is being made toward identifying and cataloging where experiments are stowed.

### EVA Timeline

General Stafford stated that there are six hours of EVA scheduled. Both he and General Engle agreed that there were no concerns about this timeline. General Stafford pointed out, however, that the crew insisted that the EVA timeliners take a conservative approach to determining hours of EVA required. This was ultimately helpful in accommodating several unexpected additional tasks.

### Lessons Learned

Mr. Joe Cuzzupoli questioned how the "lessons learned" are transferred from one Shuttle-Mir crew to the next crew. General Engle replied that this occurs in crew debriefings. Mr. Cuzzupoli questioned whether the Task Force had received copies of them. General Engle stated that they have not been routinely given to the Task Force, but he has seen them.

General Engle also said that there is a dedicated attempt to make sure that "lessons learned" are passed on to other crews, and that he would check on that when he gets back to Houston. Dr. Fischer noted that astronaut Norman Thagard objected to not being routinely informed about news from home, while the Russians were given daily 30 minute briefings. General Engle said that the Public Affairs Office is planning to send up family news as well as rebroadcast CBS news programs five times a week for Dr. Lucid.

### Sleep Shifts

General Engle explained that the crew is altering their circadian sleep cycles in order to accommodate the normal working hours of the MCC in Moscow. General Stafford questioned why there was not a compromise on the sleep alterations so that the Russians met the U.S. astronauts half way. General Engle explained that the Russians do not keep more than one or two people on a shift during normal sleeping hours.

### Main Engine

General Engle expressed concern that recent press reports have generated unnecessary apprehension about the main engine's residue blow by and command path failure. He said that it was only a slight amount of residue that blew by the wiper rings and it never got by the O-ring seals. Although there is no safety concern, the blow by is being carefully studied.

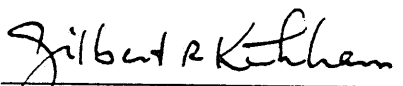
General Engle went on to explain that the command path data failure was a case of asynchronies between the main engine and the Engine Interface Unit (EIU) which talks to the General Purpose Computer (GPC). The Shuttle Program Office is well aware of these asynchronies and has documented them in the Shuttle notes.

### MIR Failures

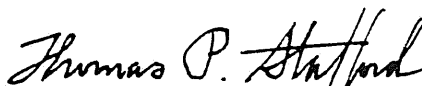
Mr. Cuzzupoli asked if the condition of the Mir had been reviewed and if there were any new failures. General Engle said that he has not heard of any failures.

### Wrap Up

Mr. Kirkham advised the Task Force that a joint report with the Utkin Commission should be ready for comments in a month or month in a half. He added that the next open meeting will be in late July. General Stafford adjourned the meeting at 3:10 pm.



Gilbert R. Kirkham  
Executive Secretary  
Task Force on the Shuttle-Mir  
Rendezvous and Docking Missions



Lt. General Thomas P. Stafford, USAF (Ret.)  
Chairman  
Task Force on the Shuttle-Mir  
Rendezvous and Docking Missions

**ATTACHMENT A**

NASA Advisory Council  
Task Force on the Shuttle-Mir Rendezvous and Docking Missions  
Room 5H46  
NASA Headquarters  
Washington, DC

March 12, 1996

1430-1500	STS-76 Topics	J. Engle
1500-1510	Joint Report on the Utkin Advisory Council Schedule	G. Kirkham

**ATTACHMENT B**

NASA Advisory Council  
Task Force on the Shuttle-Mir Rendezvous and Docking Missions  
Room 5H46  
NASA Headquarters  
Washington, DC

March 12, 1996

ATTENDANCE

Task Force Members

Thomas Stafford, Chair (via teleconference)  
Joe Cuzzupoli (via teleconference)  
John Fabian (via teleconference)  
Craig Fischer (via teleconference)  
Michael Greenfield  
James Heflin, Jr. (via teleconference)

Executive Secretary

Gilbert Kirkham

Assistant

Holly Stevens

Technical Advisors

Joe Engle  
Michael Weeks

Ex-Officio Member

James Snowden

NASA Personnel

Peter Ahlf (NASA HQ, Code U)

Visitors

Anne-Laure Munch  
Anna Radroti  
Krisztina Toth