

NASA ADVISORY COUNCIL
TASK FORCE ON THE SHUTTLE-MIR RENDEZVOUS AND DOCKING MISSIONS
NASA Headquarters
Washington, DC
February 19, 1995

SUMMARY

The NASA Advisory Council Task Force on the Shuttle-Mir Rendezvous and Docking Missions met on February 19, 1995 from 10:00 am to 12:30 pm in Room 9H40 at NASA Headquarters in Washington, DC. Attachment A contains the agenda. Attachment B lists the Task Force members, NASA employees, and members of the public in attendance. No formal presentations were made at the meeting.

MINUTES

Introductory Remarks

Gen. Stafford opened the session by thanking those Task Force members and technical advisors who had returned from Russia the previous day for their work in preparation for the trip and during it. Gen. Stafford then stated that the first topic for discussion would be an assessment of safety of flight for the Phase 1A missions (Soyuz TM-21, Mir 18 Main Expedition, and STS-71) by each of those members and advisors who had been in Russia. The second area of discussion would be any additional findings stemming from the review of preparations in Russia for Phase 1A.

Individual Assessments

Dr. Fabian stated that no safety of flight issues exist. Based on the just completed trip as well as his prior experience with the Russian space flight organizations, he felt confident the necessary policies and practices are in place.

Drs. Merrell and Fischer stated that no safety of flight issues exist. They discussed the role of the Institute for Biomedical Problems (IBMP) in Russia which is responsible for crew health. IBMP has a long and positive relationship with NASA which is evidenced in the Phase 1 joint working groups. They went on to point out that the training of the two Phase 1A astronauts, Drs. Norman Thagard and Bonnie Dunbar, is complete. The number of Phase 1A experiments has been reduced, but the necessary hardware is now ready for flight. The Phase 1A cosmonauts will be cooperating in the experiments. The U.S. medical kits have been delivered to the Mir Station via the Progress mission witnessed by the Task Force members in Russia (launch and automated docking). At the Baikonur launch site, the U.S. crewmember will be the responsibility of the Russian health care system. Neither Dr. Merrell nor Dr. Fischer envisioned a problem with this arrangement, but they did have several specific recommendations regarding emergency procedures which were to be discussed in the second portion of the meeting.

Maj. Gen. Joe Engle, USAF (Ret.) stated that no safety of flight issues exist. He discussed the openness and cooperation with which Russian managers and technical staff had addressed the questions posed by the preliminary working group members during the Russian site visits conducted in January as well as those raised during the just completed site visits.

Mr. Joseph Cuzzupoli stated that no safety of flight issues exist. Based on his participation in both the January and February site visits, it appears that the necessary processes, hardware, and people are in place for Phase 1A. He could see no reason for a "no go" vote. He also pointed out how well the Task Force review team had functioned and how effective the exchange of information and assessments between individual members had been.

Capt. William Readdy, USNR, stated that no safety of flight issues exist. He discussed the high level of readiness of the Mir 18 Main Expedition primary and backup crews as well as the specific milestones (medical certification and crew readiness certification) which had been completed over the past two weeks. He went on to draw parallels between the recently completed launch and automated docking at the Mir Station of the Progress M-26 mission with the Soyuz TM-21 mission which will involve similar hardware and be launched from the same site as the Progress vehicle. Finally, he stated that the STS-63 mission had been excellent preparation for STS-71, the first Shuttle-Mir docking mission.

Mr. David Mobley stated that no safety of flight issues exist. He discussed his perception that the necessary processes, hardware, and people are in place. He has been very impressed with the Russian processes from design through flight, feels that the quality and success of the Russian hardware is evidence of effective processes, and has confidence in the people who he has met given their high level of expertise and dedication.

Dr. Michael Greenfield stated that no safety of flight issues exist. He also stated that he had no concerns regarding the robustness of the Russian hardware. He pointed to the role of the Central Research Institute for Mechanical Engineering (TsNIIMASH) and other organizations as evidence of the independent assessment process in Russia. He went on to discuss the redundancy levels in the Mir Station indicating that adequate redundancy or workarounds exist for critical systems.

Gen. Stafford summarized the discussion to this point by stating the conclusion of the Task Force to be that the joint U.S./Russian program is following sound engineering and medical practices and is managing risk effectively; no unacceptable threats to mission safety exist for the Soyuz TM-21, Mir 18 Main Expedition, and STS-71 missions. The Task Force members agreed unanimously with this finding.

Additional Findings

The Task Force next discussed a number of additional findings as presented by individual Task Force members. The specific findings discussed are as follows:

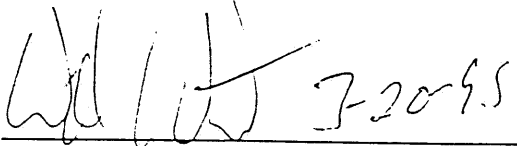
- Every effort should be made to retain key U.S. personnel who serve as interfaces to Russian organizations in their respective positions.
- Reciprocal U.S./Russian payload safety certification should be assessed.
- The Phase 1 Program Office should reassess adequacy of Mir Station communications coverage to enhance mission safety as well as mission success.
- All U.S. crewmembers who will be serving on the Mir Station must be identified no less than two years prior to their mission in order to begin the necessary language training.
- Given the limited time remaining until the Soyuz TM-21 launch, the following recommendations for on-site medical support and emergency preparations at Baikonur must be acted upon immediately:
 - The NASA flight surgeons at the Baikonur launch site must be provided with an independent communications capability allowing direct access to the NASA Johnson Space Center (JSC).
 - A NASA flight surgeon must be cleared to accompany the Soyuz TM-21 U.S. crewmember from Baikonur to Moscow in the event a medical evacuation is required.
 - All NASA personnel working at the Baikonur Cosmodrome must be immunized against Hepatitis B.
 - The NASA flight surgeons should be supplemented with a Registered Nurse/Emergency Medical Technician since the flight surgeons will not be working in close proximity to one another at the launch site.
- Prior to the TM-21 launch, NASA must investigate the clinical resources available for treatment of the U.S. crewmember as well as the practical options for transferring care of the crewmember to U.S. care at the Chkalovsky Air Base, including medical evacuation to the U.S. Air Force Base at Ramstein, Germany.
- Medical communications between the Institute for Biomedical Problems (IBMP) and NASA JSC should be by dedicated service available throughout the Phase 1A missions.
- The Joint Medical Support Plan should be agreed upon and implemented promptly to avoid potential conflicts during the course of the missions.

- NASA must tailor expectations for science during the Mir 18 Main Expedition due to the late arrival of experiment hardware and flight procedures. Emphasis in the science area should focus solely on astronaut Thagard's efforts to characterize the Mir Station environment and provide valuable lessons on how to best achieve U.S. scientific goals aboard Mir Station. The successful completion of specific experiments should be viewed within this context rather than as a separate measure of success.
- If the assistance of a cosmonaut is not available during the Mir 18 Main Expedition to conduct time critical experiments, the experiments which require that assistance should be rescheduled.
- It is imperative that flight and training hardware for U.S. experiments as well as flight procedures for U.S. experiments be available in Russia in accordance with a jointly agreed upon schedule. In the event that the necessary items are not available within that schedule, the experiment should be postponed or cancelled
- The remaining invasive protocol for Mir 18 Main Expedition crewmembers, the calcium-chloride infusion scheduled to occur aboard the Shuttle during STS-71, should be carefully reviewed by medical operations before implementation.
- Implementation of NASA institutional automated data processing and telecommunications (ADP/T) capabilities in Russia must be given a high priority.

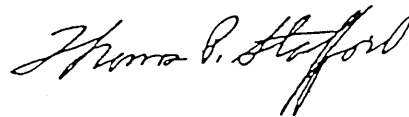
The Task Force members agreed that the additional findings should be incorporated into the report.

Adjournment

At the conclusion of the discussion of additional findings, Gen. Stafford thanked the members and technical advisors once again for their participation. He advised them that the results of the meeting would be incorporated into a draft report which would be submitted to the participating Task Force members within one week. He reminded the members that the final report was due to Mr. Goldin no later than March 1. He then adjourned the meeting.



Mr. William L. Vantine
Executive Secretary
Task Force on the Shuttle-Mir Rendezvous
Rendezvous
and Docking Missions



Lt. Gen. Thomas P. Stafford, USAF Ret.
Chairman
Task Force on the Shuttle-Mir
and Docking Missions