NASA ADVISORY COUNCIL
TASK FORCE ON THE SHUTTLE-MIR RENDEZVOUS AND DOCKING MISSIONS
July 19, 1995
Lyndon B. Johnson Space Center
Houston, Texas

SUMMARY

The NASA Advisory Council Task Force on the Shuttle-Mir Rendezvous and Docking Missions met on July 19, 1995, from 9:00 a.m. to 4:30 p.m. in Room 966 of Building 1 at the Lyndon B. Johnson Space Center (JSC). Attachment A contains the agenda. Attachment B lists the Task Force members, NASA employees, and members of the public in attendance. Attachment C lists the presentation material on file. Attachment D contains the Task Force's recommendations to the NASA Advisory Council that were developed during the meeting.

MINUTES

Introductory Remarks

Lt. Gen. Thomas Stafford opened the session by thanking the Task Force members for returning to JSC for the fifth open meeting of the Task Force. He reviewed the topics to be addressed during the meeting: NASA's presence in Russia, NASA's automated data processing and telecommunication infrastructure in Russia, preliminary results from STS-71, and the status of preparations for STS-74.

NASA's Presence in Russia, Col. James C. Adamson, USA (Ret.)

As a result of a letter to Gen. Stafford dated April 7, 1995, by Dr. Bradford Parkinson, chair of the NASA Advisory Council, requesting that the Task Force "review the overall NASA and associated contractor presence in Russia," General Stafford requested Col. Adamson head a review team to study NASA's presence in Russia.

Col. Adamson presented the review team's observations and recommendations. He praised the managers and staff at NASA's offices in the Embassy, the Gargarin Cosmonaut Training Center, and the Mission Control Center - Moscow for doing an outstanding job up to this point with few resources and considerable obstacles. He noted, however, that the team found that there is currently no charter for the NASA Moscow Liaison Office (NMLO) or the NASA Representative in Russia even though the situation and interfaces are too complex to operate in the U.S. Embassy without a clearly defined mandate. Further, the review team noted that NASA is disadvantaged by the absence of a single NASA Representative in Russia, who reports directly to the Administrator and has overall responsibility for NASA's presence in Russia. The lack of a single, authoritative NASA official in Russia causes the U.S. Ambassador and Embassy officials concern. It also diminishes NASA's opportunities to enrich relationships with senior Russian officials.

Col. Adamson also noted the team's observation that the NMLO and Moscow Technical Liaison Office (MTLO) provide administrative support to a variety of NASA offices in excess of an adequate budget and staff for such activities. Finally, Col. Adamson stated that personnel visiting and assigned in Russia often lack adequate preparation.

During the discussion that followed Col. Adamson's presentation, Maj. Gen. Ralph Jacobson questioned the necessity of such a Russia review. Col. Adamson responded that the growth of NASA's activities beyond preparations for Phase 1 and the great importance to the Administrator and senior NASA management attach to the success of NASA's relationship with Russia dictate the necessity of such a review.

Dr. John Fabian asked how the review team had reached its recommendations regarding the need for a charter and the role of the Representative. Col. Adamson responded that these conclusions were the result of extensive discussions with senior members of the Ambassador's staff. Those discussions clarified the Ambassador's extensive control and influence over NASA's activities in Russia and his expectation that NASA would appoint a single individual to serve as the NASA Representative in Russia who could speak for the agency and be responsible for NASA's presence in Russia.

Dr. Greenfield asked if the NASA Representative would be a member of the Embassy staff. Col. Adamson responded that the Representative would not be on the Embassy staff, but he or she must become integrated into the Ambassador's "country team" which is composed of senior officials at the Embassy. Mr. David Jossi, technical advisor to the Task Force, further clarified the Representative's position at the Embassy by stating that the formal agreement between the Embassy and NASA states that the NASA Representative reports to the Embassy Environment, Science, and Technology Counselor who also provides formal input to the Representative's performance evaluation at NASA. Col. Adamson noted that the Ambassador expects the NASA Representative to be responsible for the actions of any NASA civil servant or NASA-directed contractor in Russia.

Dr. Craig Fischer questioned placing cultural sensitivity over language proficiency. Col. Adamson responded that senior NASA and Embassy officials believe that while knowledge of the Russian language should be a major advantage and key discriminator in the selection process, such skill should not considered absolutely essential. Consensus was reached among the Task Force members that Russian language proficiency should not be considered an essential qualification for the NASA Representative in Russia.

Dr. Arnauld Nicogossian suggested that the Representative should also be active in the former Soviet-bloc nations, particularly those, such as Ukraine, with which NASA is currently conducting talks on a variety of subjects. Col. Adamson replied that the U.S. Ambassador considers it inappropriate to interject himself or his staff (including, by implication, NASA) into the territory of another U.S. ambassador. In addition, each of these nations has strongly held views on the subject of Russian involvement in their internal affairs. The Task Force agreed that additional information would be needed before the Task Force could formally recommend that the Representative's authority be expanded to include former Soviet nations, outside of Russia.

Dr. Fabian questioned the need to have the NASA Representative so closely tied to the U.S. Ambassador and his country team. Col. Adamson explained that NASA, if it wishes to conduct activities in Russia, must be able to work effectively with the U.S. Ambassador -- not to do so could significantly impact planning for the remaining Shuttle-Mir missions and NASA's ability to cooperate with the Russians.

Gen. Jacobson inquired as to the number of NASA-sponsored travelers to Russia. Col. Adamson responded that numbers went as high as 200 - 300 people per month and emphasized that the situation requires a single budget drawn from each of the NASA organizations requiring such services, in proportion to their use of such services as well as close coordination with the Embassy in the development of administrative procedures.

Mr. Randy Brinkley, Space Station Program Manager, noted that the MTLO, which is funded entirely by his office, had been routinely providing support to other NASA organizations. To date, the Space Station Program Office has received no funding from any of these organizations to offset the costs borne by the Space Station Program. Mr. Chester Vaughan inquired as to the percentage of administrative support activities which could be attributed to Space Station in comparison to that of other organizations operating in Russia. This data was not available.

NASA's Automated Data Processing (ADP/T) and Telecommunication Infrastructure in Russia, Mr. David Mobley

Mr. Mobley noted that he, too, had been asked by Gen. Stafford to conduct an independent review on the implementation of the automated data processing and telecommunications (ADP/T) capabilities in fulfillment of Dr. Parkinson's April 7, 1995, charge to the Task Force.

Mr. Mobley discussed the formation of his ADP/T review team, its charter, and its membership. He provided a breakdown of the locations in Russia where ADP/T capabilities are, or will be implemented, as well as a detailed history of NASA's work to date with the Russians on ADP/T. He also addressed the current status of the overall ADP/T mission architecture and the Russian infrastructure plan. An overview of the various NASA contractors and subcontractors providing ADP/T services related to Russia and a definition of PSCN services (i.e., telecommunications backbone services vs. end user services) was also provided.

Mr. Mobley addressed the in-depth approach which the ADP/T team had taken in conducting the review. This included collection and analysis of a wide range of source materials; briefings from end user and service provider organizations; attendance at regular meetings of user organizations; participation in detailed working sessions on each of the major ADP/T processes; and teleconferences with users in Russia.

Mr. Mobley reviewed the three major process areas involved in supplying ADP/T capabilities in Russia -- institutional requirements, implementation, and sustaining operations and maintenance. In each area he outlined the review team's findings, observations, and recommendations.

Finally, Mr. Mobley presented a plan for further activities of the ADP/T review team. He recommended that the team be temporarily disbanded with a single team member, Dr. Judy Krause, assigned on a full-time basis to track developments and to provide continuity. The team would reconvene in the October timeframe to revisit the status of the requirements Finalization process, site implementation plans, sustaining operations and maintenance, and to conduct site visits at the major Russian locations. At the conclusion of the activity, the team would provide a follow-up report to the Task Force. The Task Force members agreed completely with this approach.

Following Mr. Mobley's presentation, Mr. Barry Waddell, Chairman of the JSC Institutional Communications Requirements (ICR) Panel and Co-Chairman of the Joint U.S./Russian ICR Working Group, provided a brief presentation on the status of negotiations with the Russians on the Joint ICR Document. He stated that the document was very near completion and that his Russian counterpart, Mr. Valerie Grigoriev of the Russian Space Agency, would be arriving at JSC on July 24 with the final updates to the document with him, ready for discussion.

STS-71/Mir 18 Results, Lessons Learned, and Issues; STS-74 Status, Mr. Tommy Holloway

Mr. Holloway opened this portion of the meeting by stating that a series of presentations would be delivered addressing preliminary results, lessons learned, and issues relating to the STS-71 and Mir 18 missions as well as preparations for STS-74. These presentations were highly technical in content and very detailed.

Mr. Gary Johnson addressed reciprocal safety agreements for U.S. payloads flown on Mir and Russian payloads flown on the Shuttle. Mr. Cuzzupoli stated that this was an area which may provide significant cost savings to NASA.

Dr. Peggy Whitson addressed the scientific experiments conducted during the Mir 18 Main Expedition including major accomplishments during the mission and lessons learned. During Dr.

Whitson's discussions of the lessons learned, Gen. Stafford reemphasized the Task Force's recommendation, contained in its fourth report (March 1, 1995), that all science hardware, both training and flight hardware, as well as written procedures be delivered no less than three months prior to a given mission in order to allow the crew adequate time for training.

Dr. David Ward addressed NASA medical communications with the Mir 18 Main Expedition crew, which included NASA astronaut Dr. Norman Thaggard. In his presentation, Dr. Ward stated that opportunities to communicate with Dr. Thaggard were very limited and did not occur on a daily basis. Dr. Ward suggested that the Task Force consider recommending that NASA conclude an agreement with the appropriate Russian officials which establishes a schedule for daily communication with astronauts who serve on Mir in the future. Following brief discussion, the Task Force agreed to make such a recommendation. In addition, Dr. Ward stressed the importance of strengthening the NASA presence in the MCC-M. He pointed out that the flight surgeons have been serving as the Capsule Communicator (CapCom) to this point, but there is a need to have other individuals trained to serve in that capacity.

Mr. John Norris addressed the current status of the pyrotechnic bolts supplied by the Russians used in the ADPS. The pyrotechnic bolts are the first level of redundancy for undocking the Orbiter from the Mir Station. Mr. Norris stated that although the combined system qualification and lot acceptance tests for the pyrotechnic bolts had been completed, validation of the main explosive charge had not been performed. In addition, an insufficient number of pyrotechnic bolts exists to conduct the service life tests for the post-STS-74 Shuttle-Mir missions. The Engineering Directorate at JSC is currently investigating options for multi-Mir service life certification. One option is to remove the pyrotechnic bolts from the APDS on *Atlantis*. When Mr. Norris mentioned this option, Mr. Holloway indicated that such an option cannot be exercised as the STS-71 APDS will need to remain intact to provide a second unit in the event that more than the current seven Shuttle-Mir missions need to be manifested. Given this discussion and the still unresolved issues associated with the pyrotechnic bolts, Gen. Stafford asked Maj. Gen. Joe Engle and his STS-74 review team to focus attention on this area.

Following the presentations, Mr. Holloway offered the Task Force members the opportunity to ask follow-up questions. Mr. Vaughan asked how planning for the post-STS-74 missions was proceeding. Mr. Holloway provided a relatively detailed status on the two missions following STS-74 and stated that planning for the missions beyond those were on schedule. He also stated that the Phase 1 Program Office would be focusing on resolution of the pyrotechnic bolt issues and strengthening NASA's presence in the MCC-M. Mr. Holloway concluded his closing remarks by displaying several photographs of Mir and the STS-71 mission taken during the STS-71 mission by the new digital camera.

Following Mr.Holloway's closing remarks, Gen. Stafford thanked Mr. Holloway for the excellent briefings as well as the tremendous success he and his team had experienced on STS-71. He also thanked the Task Force members 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 them within two weeks for their review.

Gen. Stafford adjourned the meeting at 4:30 p.m.

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

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