

THOMAS P. STAFFORD
1006 Cameron Street
Alexandria, VA 22314

June 6, 1994

Dr. Bradford Parkinson
Chairman, National Aeronautics and
Space Administration Advisory Council
National Aeronautics and Space Administration
Washington, DC 20546-0001

Dear Dr. Parkinson:

On May 24 and 25, I convened the first meeting of the NASA Advisory Council Task Force on the Shuttle-Mir Rendezvous and Docking Missions at the Johnson Space Center (JSC). The minutes for this meeting and the names of those Task Force members who participated are enclosed.

It is the Task Force's conclusion that a great deal of work has gone into the preparations for the first two missions, STS-71 and STS-74. It was quite evident that planning for these Shuttle-Mir missions has been extensive and that a high level of dedication and commitment to this effort exists throughout the organizations involved. Also clear was the critical role that Phase 1 will play in preparing for the development, construction, operation, and utilization of the International Space Station Alpha.

Based on these initial briefings and Task Force discussions, we would like to make the following immediate recommendations:

- At a minimum, the mission commander and payload commander for all subsequent Shuttle-Mir missions should be named at least 18 months in advance of the scheduled launch date.
- In order to derive early operational experience in advance of the first Mir docking mission, the primary objective of STS-63 should be Mir rendezvous and proximity operations.
- If at all possible, the launch date for STS-63 should be moved forward.

During the course of the initial briefings a number of additional issues and questions were raised which the Task Force intends to explore further. Towards that end, I have established four working groups composed of Task Force members and technical advisors. Each working group will collect additional information regarding the issues in its particular area, review that information, and report its initial findings and recommendations at our next meeting, tentatively scheduled for 12 and 13 July. Following that meeting, I will provide you with a detailed report and additional recommendations.

Given the dedication of the Task Force members and technical advisors as well as the wealth of knowledge and experience they represent, I feel confident that the working groups will provide a wide range of valuable insights at the July meeting of the Task Force. As mentioned above, the information provided by the working groups will be incorporated into a detailed report to be provided to you shortly following the meeting.

In conclusion, I would like to call to your attention the outstanding support the Task Force has received from the Johnson Space Center, the International Space Station Alpha Program, and the Space Shuttle Program. This is particularly appreciated given the busy schedules of the many individuals who contributed to the meetings.

Sincerely,

A handwritten signature in cursive script, reading "Thomas P. Stafford".

Thomas P. Stafford
Lt. General, USAF(Ret.)

cc:

NASA/Code A/Mr. Goldin
NASA/Code M/Gen. Pearson
NASA/Code I/Ms. A. Accola

NASA ADVISORY COUNCIL
 TASK FORCE ON THE SHUTTLE-MIR
 RENDEZVOUS AND DOCKING MISSIONS
 Initial Briefing
 Lyndon B. Johnson Space Center
 Building 1, Room 966
 24 - 25 May 1994
 Meeting Minutes

| Tuesday, 24 May 1994 | | |
|----------------------|---|---|
| 9:05 - 9:10 | Welcoming Remarks | Dr. Carolyn Huntoon JSC Center Director |
| 9:10 - 10:20 | Phase 1 Overview <ul style="list-style-type: none"> • Background (International Agreements) • Phase 1 Scope • Goals of Phase 1 • Joint Working Group Structure • Cooperative and Contractual Arrangements • Program Schedule | Mr. James Nise International Space Station Alpha (ISSA) Program Office |
| 10:30 - 11:25 | Mission Overviews (STS-63, STS-71, and STS-74) <ul style="list-style-type: none"> • Mission Objectives • Mission Summary • Flight Summary | Mr. David S. Grissom Space Shuttle Program Office |
| 11:25 - 12:00 | STS-71 Science Overview <ul style="list-style-type: none"> • Joint Science Working Group • Priorities • Investigations • Disciplines • Hardware • End of Mission Countermeasures • Training • Timeline • Post-Flight Activity Planning | Dr. Peggy Whitson JSC Space and Life Sciences Directorate |
| 12:15 - 3:10 | Orbiter Docking System <ul style="list-style-type: none"> • Requirements Highlights • Hardware Overview • STS-71 Program Status • STS-74 Program Status • Androgynous Peripheral Assembly System (APAS) Docking Mechanism Overview | Mr. Stuart McClung JSC Orbiter and GFE Projects Office Mr. John McManamen JSC Engineering Directorate |

Wednesday, 25 May 1994

| | | |
|---------------|--|--|
| 8:10 - 10:00 | <p>Systems Integration</p> <ul style="list-style-type: none">• Roles and Responsibilities• STS-63 and STS-71 Overview and Status• Joint Engineering Analysis Approach• On-Orbit Engineering Areas<ul style="list-style-type: none">- Mated Flight Control- Loads and Dynamics- Thermal Control- Life Support Systems- Avionics- Rendezvous and Docking Aids• STS-74 Overview and Status | <p>Mr. Gregory Lange Space Shuttle Integration and Operations Office</p> <p>Mr. Donald Noah Space Shuttle Integration and Operations Office</p> |
| 10:00 - 11:10 | <p>Operations</p> <ul style="list-style-type: none">• Flight Design Overview• Mir Approach Demonstration DTO• +Rbar Approach• New Tools for Rendezvous and Docking• Proximity Operations• Organization• Flight Operations• Flight Rules• Attitude Planning• Communication and Interaction Between Mission Control Centers• Schedules | <p>Mr. Gary Coen JSC Mission Operations Directorate</p> |
| 11:30 - 12:15 | <p>Crew Exchange and Training</p> <ul style="list-style-type: none">• Crew Exchange and Training Working Group<ul style="list-style-type: none">- Functions- Members- Interfaces• Documentation• Status• Training Challenges• Training Strategy• Cosmonaut Training Plan• Comparison of U.S. and Russian Training• Bailout/Egress• Docking Mission Training• Crew Tasks During Prox Ops/Docking | <p>Mr. Steven Nagel JSC Flight Crew Operations Directorate</p> <p>Mr. Tommy Capps JSC Mission Operations Directorate</p> <p>Mr. Steven Nagel JSC Flight Crew Operations Directorate</p> |
| 12:30 - 1:00 | <p>Safety</p> <ul style="list-style-type: none">• Safety Assurance Working Group• Safety Assurance Policy and Guidelines• Shuttle/Mir Program Safety Documentation Development• Safety Requirements• Analysis of Off-Nominal Situations and Hazardous Conditions• Readiness to Support the Mission• Schedule | <p>Ms. Charlene Sarver JSC Mission Operations Directorate</p> |

TASK FORCE MEMBERS AND TECHNICAL ADVISORS
ATTENDING THE 24 - 25 MAY MEETING

Team Members

Lt. Gen. Thomas P. Stafford, USAF (Ret.), Chairman
Stafford, Burke and Hecker, Inc.

Col. James C. Adamson, USA (Ret.)
President, Monarch Precision

Dr. Michael A. Greenfield
Deputy Associate Administrator, NASA Office of Safety and Mission Assurance

Maj. Gen. Ralph Jacobson, USAF (Ret.)
President and CEO, The Charles Stark Draper Laboratories

Mr. James M. Heflin, Jr.
Flight Director Office, NASA Lyndon B. Johnson Space Center

Dr. Arnauld Nicogossian
Deputy Associate Administrator, NASA Office of Life and Microgravity Sciences and Applications

Mr. Chester A. Vaughan
Chief, Propulsion and Power Division, NASA Lyndon B. Johnson Space Center

Capt. John Young, USN (Ret.)
Special Assistant for Engineering, Operations, and Safety, Office of the Director,
NASA Lyndon B. Johnson Space Center

Executive Secretary

Mr. William L. Vantine

Technical Advisors

Maj. Gen. Joe H. Engle, USAF (Ret.)
President, Engle Technologies, Inc.

Mr. Glynn Lunney
President, Rockwell Space Operations Company