SUBJECT: Soyuz-25, Expedition 26 / Increment 25 MORR Minutes

DATE: October 26, 2010

PLACE: Goddard Corporate Park (GCP), TQ Room

TIME CONVENED: 1300 TIME ADJOURNED: 1400

ATTENDANCE

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INTRODUCTION

Ms. Melissa Blizzard convened the Soyuz-25, Expedition 26 / Increment 26 Mission Operations Readiness Review (MORR) to review Integrated Network (IN) element mission operations readiness (refer to the presentation, *Soyuz-25, Expedition 26 Increment 26 Mission Operations Readiness Review [MORR]*). This MORR covers changes and updates to the network since the Soyuz-24 MORR.

MEETING ITEMS

A. Welcome/Introduction
   1. Ms. Blizzard reviewed the agenda for the MORR.
   2. Ms. Blizzard reviewed the MORR board membership.
      - Mr. Richard N. Harris, Chairperson, GSFC/Code 450.1, Networks Integration Management Office (NIMO).
      - Mr. Robert L. Jones, GSFC/Code 599, 450 Senior Technical Authority.
      - Mr. Bradford Butts, GSFC/Code 761, Systems Management Branch.
      - Ms. Leigh R. Janes, GSFC/Code 595, Navigation and Mission Design Branch.
      - Mr. Kevin McCarthy, GSFC/Code 453, Ground Network Project.
      - Mr. Joseph Aquino, JSC/DD13, Manager, Space Communications Integration Office (SCIO) (Jewel Hervey signed for).
      - Mr. Mike Yettaw, DFRC, Range Technical Monitor, Western Aeronautical Test Range (WATR).
   3. Ms. Blizzard provided an overview of the review process (Goddard Space Flight Center [GSFC] MORR, Johnson Space Center [JSC] Mission Operations Directorate [MOD] Flight Readiness Review [FRR], and Stage Operations Readiness Review [SORR]). GSFC does not participate directly in the SORR, but is represented by the JSC Ground Controller's (GC) Office.

B. Mission Overview
   1. Mr. Riley reviewed the Launch Profile. He stated that the launch is scheduled for No Earlier Than (NET) December 13, 2010 at 1956 GMT. Docking to the International Space Station (ISS) will be December 15, 2010. The Soyuz will remain docked for approximately 6 months at which time it becomes the Russian Crew Return Vehicle and is replaced by Soyuz-26 in March 2011.
   2. Mr. Riley reviewed ISS assembly sequence which shows the different increments.

C. Integrated Network (IN) Overview
   1. Mr. Riley reviewed the ISS/Soyuz IN Overview diagram. Mr. Riley stated that the diagram is color coded to show the U.S. segment and the Russian segment.
   2. Mr. Riley reviewed the documentation. The table shows what documentation is or will be in place and when. All documentation is up to date.
   3. Mr. Riley stated that there have been no Program requirement Document (PRD) changes.
   4. Mr. Riley reviewed the Operational/Network Changes. An Engineering Change (EC) is being done to modify the PCs at Wallops and the White Sands Complex (WSC) to provide digital Very High Frequency (VHF) voice recording. ANTC has been decommissioned. PATC Estimated Time for Return to Operation (ETRO) for the Radar Open Systems Architecture (ROSA) upgrade is December 31, 2010.

5. Mr. Riley provided a Network Verification Test summary. Monthly VHF-1 two-way voice checks were conducted with ISS and Dryden Flight Research Center (DFRC). Additional testing with all three sites (DFRC, WSC, and Wallops) is scheduled for November 2010. VHF-2 tracking is verified by shadowing VHF-1.

D. Integrated Network Element Status

1. Network Integration Center (NIC). Mr. Riley provided a NIC status.
   (a) There have been no software or hardware operational changes since the last MORR.
   (b) There are no open Discrepancy Reports (DR).
   (c) There is no open work.
   (d) There are no projected changes.
   (e) Staffing is sufficient to meet all requirements.
   (f) Documentation is up to date.
   (g) Mr. Riley stated that the NIC is ready to support Soyuz-25.
2. Space Network (SN)/WSC. Mr. David Glasscock provided a SN/WSC and WSC VHF status.
   (a) Mr. Glasscock reviewed the software updates since the last MORR. Two software deliveries have been made and the Space Network Access System (SNAS) Release 4 transition is scheduled for December 1, 2010.
   (b) Mr. Glasscock reviewed the hardware changes since the last MORR. The MOVE system replaces the obsolete Multi-conference Digital Switch (MDS) at WSC. Cutover to the NRT T-1s is scheduled for November 2010. White Sands Ground Terminal (WSGT) and Second Tracking and Data Relay Satellite System (TDRSS) Ground Terminal (STGT) installs will follow in 2011. The antenna Sub-System Controllers (SSC) replaces obsolete 286-based Central Processing Units (CPU). Complete STGT installation is scheduled for December 2010. The TDRS Operations Control Center (TOCC) console moves are complete. The Guam Data Information System – Replacement (GDIS-R) Operational Readiness Review (ORR) was held on September 30, 2010.
   (c) Mr. Glasscock reported that there is one open DR.
   (d) Mr. Glasscock stated that there is no software open work and that the antenna MOVE and SSC remain as hardware open work.
   (e) Mr. Glasscock reported that there are Automated Data Processing Equipment (ADPE) projected changes.
   (f) Mr. Glasscock provided a status of the TDRSS fleet.
      (1) TDRS-4 (TDS) Power Systems Degradation. Services are nominal at this time.
      (2) TDRS-4 (TDS) Telemetry Errors. TDRS-4 downlink has been experiencing irregular, apparently random telemetry errors with minor user data loss. A spare Traveling Wave Tube Amplifier (TWTA) is available.
      (3) TDRS-4 (TDS) Ku-band Single Access (KSA-2). The KSA-02 forward Service is 5.7 dB below specification for Normal Power operations and 4.8 dB below specification for High Power operations. A spare TWTA is available.
      (4) TDRS -4 Eclipse Season. The next eclipse season is January 21, 2011 through March 23, 2011.
   (g) Staffing is sufficient to meet all requirements.

(h) Documentation is up to date.
(i) Mr. Glasscock stated that the SN/WSC is ready to support Soyuz-25.
(j) Mr. Glasscock provided a WSC VHF status. There have been no operational changes since the last MORR. There is one open DR. There is no open work. There are no projected changes. Staffing is sufficient to meet all requirements. Documentation is up to date. Mr. Glasscock stated that WSC VHF systems are ready to support Soyuz-25.

3. WGS. Mr. Mark Harris reported that there have been no software or hardware operational changes since the last MORR. There are no open DRs. There is no open work. There are no projected changes. Staffing is sufficient to meet all requirements. Documentation is up to date. Mr. Harris stated that WGS is ready to support Soyuz-25.
4. DFRC. Mr. Douglas Boston reported that there have been no software or hardware operational changes since the last MORR. There are no open DRs. There is no open work. There are no projected changes. Staffing is sufficient to meet all requirements. Documentation is up to date. Mr. Boston stated that DFRC is ready to support Soyuz-25.
5. NASA/DoD Radars C-band Eastern Range (ER). Mr. Mike Gawel provided an ER resources status. There was one software change. The FOV-1 software was upgraded to version 2.5. There were no hardware operational changes since the last MORR. There are no open DRs. There is no open work. There are no projected changes. The following NASA/DoD radars will be available: MLAC, JDIC, and WLPC. The plan is to use MLAC, JDIC, and WLPC for Orbit 6. MLAC, JDIC, and WLPC will track Orbit 6 and provide Low Sample Rate (LSR) data to the Flight Dynamics Facility (FDF). Staffing is sufficient to meet all requirements. Documentation is up to date. Mr. Gawel stated that ER resources are ready to support Soyuz-25.
6. NASA Integrated Services Network (NISN). Mr. Al Duany provided the NISN status.
   (a) There have been no software operational changes since the last MORR.
   (b) The OC-12 upgrades for support of the HSF requirements are in work. The WSC/GSFC OC-12 was turned up to the GCC for testing on October 25. The JSC/WSC OC-12 has hot levels between Qwest and AT&T, coming out at the Fair Acres office in New Mexico. The GSFC/Marshall Space Flight Center (MSFC) OC-12 is under test and there are no problems. The OC-12s will be accepted as a whole package when all ready.
   (c) Mr. Duany provided a review of the MSFC Russian Services Group (RSVG) activities.
   (d) There are no PMDS tickets.
   (e) There is no open work.
   (f) There are no projected changes.
   (g) Staffing is sufficient to meet all requirements.
   (h) Documentation is up to date.
   (i) NISN will process all Freeze Exemption Requests (FER) during the mission in accordance with NISN SOP-002.
   (j) Mr. Duany stated that NISN is ready to support Soyuz-25.

7. FDF. Ms. Nikki Wilcox reported there have been no software or hardware operational changes since the last MORR. There are no open DRs. Open work consists of verifying receipt/processing of Soyuz-25 Two Line Elements (TLE) by VHF sites. There is no projected work. Staffing is sufficient to meet all requirements. The Soyuz-25 Mission Support Plan will be delivered by December 3, 2010. Ms. Wilcox stated that FDF is ready to support Soyuz-25.
8. Integrated Network Summary. Mr. Riley provided an IN summary.
   (a) Mr. Riley reviewed the requirements/test matrix. A VHF-1 pass was conducted at DRFC with the VHF-2 system shadowing during the VHF-1 passes. Additional VHF-1 passes at all three sites are scheduled for November.
   (b) Mr. Riley reviewed the risks.
      (1) VHF-2. VHF-2 is not periodically End-to-End (ETE) tested. There is a test plan. The mitigation for this risk is on hold. The use of the U.S. restricted frequencies is being revisited by the JSC Spectrum Management.
      (2) NISN MOVE Failure. There is no MOVE switch backup. Meet-me numbers or direct black phone numbers will be provided for all missions that have critical voice requirements.

BOARD COMMENTS

Mr. Harris polled the Review Board for their comments. All the board members stated that the network is ready to support Soyuz-25.

ACTION ITEM REVIEW

No action items were assigned at the October 26, 2010, Soyuz-25 MORR.

RFA REVIEW

No Requests for Action (RFA) were assigned at the October 26, 2010, Soyuz-25 MORR.

(Original Approved By)
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Kevin Riley
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