

SUBJECT: Soyuz-31, Expedition 32 / Increment 32 MORR Minutes

DATE: May 30, 2012

PLACE: Goddard Space Flight Center, B12 / Room N112

TIME CONVENED: 1300

TIME ADJOURNED: 1400

#### ATTENDANCE

<i>Last Name</i>	<i>First Name</i>	<i>Organization</i>	<i>E-mail Address</i>	<i>Telephone #</i>
Bangerter	James	GSFC/NASA/HSF ND	James.A.Bangerter@nasa.gov	301-286-7306
Banks	Turonald	GSFC/HSF	Turonald.Banks.contractor@exelisinc.com	301-823-2563
Baxter	Cliff	WSC/SCNS	cbaxter@mail.wsc.nasa.gov	575-525-6289
Blizzard	Melissa	GSFC/HSF	Melissa.Blizzard@exelisinc.com	301-823-2622
Calhoun	Melvin	GSFC/HSF	Melvin.Calhoun@exelisinc.com	301-823-2644
Clark	Ken	GSFC/HSF	kenneth.g.clark@nasa.gov	301-286-6025
Daniel	Earl	GSFC/HSF	Earl.Daniel.contractor@exelisinc.com	301-823-2560
Dent	Carolyn	GSFC/NASA/301	Carolyn.P.Dent@nasa.gov	301-286-6801
Honeycutt	Randy	GSFC/CSO	Randy.B.Honeycutt@nasa.gov	301-286-0771
Kobin	Heather	GSFC/NASA/CSO	heather.kobin@nasa.gov	301-286-1059
Lecha	Maria	GSFC/NASA/567	maria.c.lecha@nasa.gov	301-286-9276
May	Jennifer	GSFC/HSF	Jennifer.May.contractor@exelisinc.com	301-823-2629
Mitchell	Warren	GSFC/FDF	Warren.J.Mitchell@nasa.gov	301-286-5092
Newman	Lauri	GSFC/NASA/595	lauri.k.newman@nasa.gov	301-286-3155
Pifer	Fred	GSFC/HSF	Fred.Pifer.Contractor@exelisinc.com	301-823-2646
Russell	Thomas	GSFC/HSF	Thomas.Russell@exelisinc.com	301-823-2626
Schlichter	Dale	GSFC/SCNS	Dale.Schlichter@exelisinc.com	301-823-2606
Testoff	Steven	GSFC/ASRC/HSF	Steven.B.Testoff@nasa.gov	301-286-6538

<i>Via Teleconference</i>				
Aquino	Joseph	JSC/NASA/SCIO	Joseph.M.Aquino@nasa.gov	281-483-4033
Baum	Earl	JSC/NOIT	Earl.J.Baum@nasa.gov	281-483-2321

Gawel	Mike	ER	Michael.Gawel@patrick.af.mil	321-853-8118
Glasscock	David	WSC	dglassco@mail.wsc.nasa.gov	575-527-7035
Harris	Mark	WFF	Mark.A.Harris@nasa.gov	757-824-2192
Hendrickson	J.R.	WFF	james.r.hendrickson@nasa.gov	757-824-1778
Hervey	Jewel	JSC/NASA/SCIO	Jewel.R.Hervey@nasa.gov	281-483-0359
James	Russell	DFRC	russell.w.james@nasa.gov	661-276-3070
Marriott	Bob	JSC/NOIT	Robert.R.Marriott@nasa.gov	281-483-6879
Marsh	Mike	JSC/NOIT	Michael.K.Marsh@nasa.gov	281-483-4761
Pavlicek	James	DFRC/NASA	james.r.pavlicek@nasa.gov	661-276-2671
Shinners	Don	GSFC/WSC/NASA	Donald.W.Shinners@nasa.gov	575-527-7001
Taylor	Shayla	GSFC/SCNS	Shayla.Taylor@exelisinc.com	301-823-2624
Thomas	Justin	DFRC/Arcata	justin.l.thomas@nasa.gov	661-276-5023
Thompson	Craig	JSC/NOIT	Craig.Thompson-1@nasa.gov	281-483-0241

## INTRODUCTION

Mr. Jim Bangerter convened the May 30, 2012, Soyuz-31, Expedition 32 / Increment 32 Mission Operations Readiness Review (MORR) to review Integrated Network (IN) element mission operations readiness (refer to the presentation, *Soyuz-31/Expedition 32 Increment 32 Mission Operations Readiness Review [MORR]*). This MORR covers changes and updates to the network since the Soyuz-30 MORR.

## MEETING ITEMS

### A. Welcome/Introduction

1. Mr. Bangerter reviewed the agenda for the MORR.
2. Mr. Bangerter reviewed the MORR board membership.
  - Ms. Carolyn P. Dent, GSFC/Code 301, Systems Review Office.
  - Mr. Scott A. Greatorex, GSFC/Code 450.1, Chief, Networks Integration Management Office (NIMO) (not in attendance).
  - Ms. Susan L. Hoge, GSFC/Code 595, Navigation and Mission Design Branch (not in attendance).
  - Mr. Bradford Butts, GSFC/Code 761, Systems Management Branch (Ms. Heather Kobin signing for).
  - Mr. Joseph Aquino, JSC/DD13, Manager, Space Communications Integration Office (SCIO).
  - Mr. Marco Midon, GSFC/Code 453, Ground Network Project (not in attendance).
  - Mr. Don Shinnars, GSFC/Code 452, Space Network Project.
  - Mr. Michael Yettaw, DFRC, Range Technical Monitor, Western Aeronautical Test Range (WATR) (Mr. James Pavlicek signing for).
  - Mr. James A. Bangerter, GSFC/Code 450.1, Human Spaceflight Network Director.
3. Mr. Bangerter 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. The FRR is scheduled for June 6, 2012. The SORR is scheduled for June 14, 2012.

### B. Mission Overview

1. Mr. Pifer reviewed the Mission Profile. He stated that the launch is scheduled for July 15, 2012, 0237 Greenwich Mean Time (GMT). Docking to the International Space Station (ISS) will be July 17, 2012. The Soyuz will remain docked for approximately 6 months at which time it becomes the Russian Crew Return Vehicle. The payload is crew, logistics, and supplies.
2. Mr. Pifer reviewed ISS Supply Sequence. The supply sequence illustrates the activities during the different increments. Ms. Carolyn Dent noted that the page needs to be updated. The SpaceX mission is Commercial Orbital Transportation Services (COTS) Demo 2 vice Demo 3 and has moved to September 24, 2012.

### C. Integrated Network (IN) Overview

1. Mr. Pifer reviewed the ISS/Soyuz IN Overview diagram. This is the basic network configuration in support of the ISS and Soyuz. The diagram is color coded for the different network elements. Green denotes the U.S. segment and Blue denotes the Russian segment. Tracking and Data Relay Satellite (TDRS)-6 (TD-6) started a drift maneuver on May 25. TD-6 will arrive at its new location (62.4 degrees) on June 12. It will still be designated spare backup and used for TDRS-K testing. Mr. Bangerter stated that JSC needs to be informed that TD-3 has issues and that TD-6 is drifting to a new slot temporarily through July, 2012. This is a change from the H-II Transfer Vehicle (HTV) MORR. This information needs to be provided to the HTV project.
2. Mr. Pifer reviewed the documentation. The table shows what documentation is or will be in place and when including Interim Support Instructions (ISI). All documentation is up to date.
3. Mr. Pifer stated that there have been three Program Requirement Document (PRD) changes. Space Shuttle references have been removed from the ISS PRD. Eastern Range (ER) C-band requirements have been changed to contingency support only. Very High Frequency (VHF) Emergency Communications Update for Private VHF Communications is under review to insure private audio is not recorded.
4. Mr. Pifer reviewed the Operational/Network Changes. Upgrades have been made at the White Sands Complex (WSC).
  - (a) VHF-1 Quad Yagi antenna/tower installation is complete. The system is Yellow pending an ISS communications checkout.
  - (b) The VHF-1 license has been renewed.
  - (c) The Communications Service Office (CSO)/NASA Integrated Services Network (NISN) has a procedure in place to inhibit the recording of private Air-to-Ground (A/G) conversations on the Mission Operations Voice Enhancement (MOVE) system. WSC is the only VHF station interfaced to the MOVE system.
  - (d) The WSC VHF-1 Operational Readiness Review (ORR) is scheduled for May 30, 2012. (Editor's Note – the ORR was successful. There were no Requests for Action (RFA) and three action items were assigned.)
5. Mr. Pifer provided a Network Verification Test summary. VHF-1 two-way checks were performed with the ISS and there were no issues (Wallops Ground Stations [WGS] on December 26, 2011 and Dryden Flight Research Facility [DFRC] on February 23, 2012).
6. Mr. Pifer discussed Network VHF Proficiency Simulations. The simulations were completed with WGS and DFRC on May 1, 2012. The simulation was supported by the Houston Comm Techs (HCT), Goddard Space Flight Center (GSFC) Spaceflight Mission Managers (SMM), DFRC, and WGS VHF personnel. There was no ISS crew participation. Stations submitted Pass Summary Reports. Future VHF Proficiency Simulations are planned with all stations. The network is being polled at this time and it is believed that monthly simulations will be sufficient to maintain operator proficiency. The number of simulations will be discussed with Mr. Bangerter.

#### D. Integrated Network Element Status

1. Network Integration Center (NIC). Mr. Pifer provided a NIC status.
  - (a) There have been no software changes since the Soyuz-30 MORR.
  - (b) NIC consoles are being relocated. No hardware changes are being done. There is no impact to mission support.
  - (c) There are no open Discrepancy Reports (DR).
  - (d) There is one Freeze Exemption Request (FER) in the system for the ongoing GSFC steam restoration project.
  - (e) There is no open work.
  - (f) There is a projected change to reconfigure the NIC consoles/workstations.
  - (g) Facilities are Green.
  - (h) Staffing is sufficient to meet all requirements.
  - (i) Documentation is up to date.
  - (j) Mr. Pifer stated that the NIC is ready to support Soyuz-31 and ISS Increment 32.
2. Space Network (SN)/WSC. Mr. David Glasscock provided a SN/WSC and WSC VHF status.
  - (a) Mr. Glasscock reviewed software changes. The Data Interface System (DIS) disk drive firmware has been delivered. The Network Control Center Data System (NCCDS) was upgraded to support the Flight Dynamics Facility (FDF) modernization. Ops-003 has been delivered.
  - (b) Mr. Glasscock reviewed the hardware changes. Guam Remote Ground Terminal (GRGT) Shuttle Unique Equipment (SUE) was removed. MOVE has been completed.
  - (c) There are no open DRs.
  - (d) There is no open work.
  - (e) There are no projected changes.
  - (f) Staffing is sufficient to meet all requirements.
  - (g) Documentation is up to date.
  - (h) Mr. Glasscock stated that the SN/WSC is ready to support Soyuz-31 and ISS Increment 32.
  - (i) Mr. Glasscock provided a WSC VHF status.
    - (1) WSC is working to include software and hardware audio record capabilities and a camera installation. Mr. Bangerter asked if the software for the audio has been delivered. Mr. Glasscock stated that the Engineering Change (EC) has not been written. VHF-1 and -2 separation is complete. Mr. Bangerter stated that the Operational Changes should read No Changes except the VHF-1 and -2 work. The camera installation should be Open Work. Ms. Dent asked if the camera is required and Ms. Blizzard stated that it is an enhancement.
    - (2) There is one open DR. The VHF-1 High Power Amplifier (HPA) #2 is experiencing low power. The HPA is Yellow. The prime HPA is nominal.
    - (3) Mr. Glasscock reported that open work includes the installation of a camera so that the antenna can be monitored from the operations floor.
    - (4) Mr. Glasscock reviewed the two ECs created for the WSC work. VHF-1 is Yellow until the successful completion of an ISS pass.
    - (5) Staffing is sufficient to meet all requirements.

- (6) Documentation is up to date.
- (7) Mr. Glasscock stated that WSC VHF systems are ready to support Soyuz-31 and ISS Increment 32.
3. WGS. Mr. Mark Harris provided a WGS status. There have been no software or hardware operational changes since the Soyuz-30 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-31 and ISS Increment 32.
  4. DFRC. Mr. Justin Thomas reported that there have been no software or hardware operational changes since the Soyuz-30 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. Thomas stated that DFRC is ready to support Soyuz-31 and ISS Increment 32.
  5. NASA/DoD C-bands Eastern Range (ER). Mr. Mike Gawel provided an ER resources status. ISS Visiting Vehicles (VV) are not routinely supported by the ER and Western Range (WR). If a contingency is declared by the ISS Ground Controller (GC) during a VV mission, the ranges have agreed that C-band radars will provide VV contingency support within agreed upon call-up times for Nominal and Off-duty hours. Support will be provided on a best-obtainable basis. An ISI for C-band Radar Contingency Call-up Procedures will be published prior to mission. Prior to L-10 days, an update to the Points-of-Contact (POC) for the ISI will be sent. The ER will also send the HSF Network Director (ND) and SMM a status of the available radars. This notice will not preclude any radar maintenance, etc. Mr. Gawel reviewed the C-band Contingency procedure.
  6. Flight Dynamics Facility (FDF). Mr. Warren Mitchell reported that there have been no software or hardware changes since the Soyuz-30 MORR. There are no open DRs. The Soyuz-31 Two Line Elements (TLE) will be transmitted and reception verified by VHF sites. There are no projected changes. Staffing is sufficient to meet all requirements. The Soyuz-31 Mission Support Plan will be delivered by July 1, 2012. Mr. Mitchell stated that FDF is ready to support Soyuz-31 and ISS Increment 32.
  7. CSO. Mr. Randy Honeycutt provided the CSO status.
    - (a) There have been no software operational changes since the Soyuz-30 MORR.
    - (b) The MOVE keyset retrofit is complete. The Mission Control Center (MCC) and Marshall Space Flight Center (MSFC) teams successfully transitioned the ISS Ku-band data from the ISS Downlink Enhancement Architecture (IDEA) network to the ISS IP Ground Routed Network (IIGoR) network. IDEA will be turned down on July 1, 2012.
    - (c) There have been no changes to the MSFC Russian Services activities.
    - (d) There are no NASA Integrated Communications Services (NICS) Information Technology Service Management (NITSM) tickets.
    - (e) Mr. Honeycutt stated that there is no software open work.
    - (f) The Nortel Router Replacement Project (NRRP) upgrade work continues. All equipment has been delivered to the sites. The Host Centers are in various stages of installation. The project is scheduled for completion in April or May 2013.

- (g) The MSFC Small Conversion Device (SCD) has buffering problems with the HTV-3 commands which caused a 19-second delay. A new SCD was loaded with the upgraded 7.0 software and shipped to MSFC. The upgraded software should mitigate the delay from 19 seconds to 2 seconds. CSO is waiting on a MSFC test (scheduled for May 30). Mr. Ken Clark stated that the test was conducted and there were issues. There may be problems with the test configuration. Mr. Bangerter stated that this only impacts HTV and not Soyuz and any updates will be held until the test report is issued.
  - (h) There are no projected changes.
  - (i) Staffing is sufficient to meet all requirements.
  - (j) Documentation is up to date.
  - (k) NISN will process all FERs during the mission in accordance with NISN SOP-002.
  - (l) Mr. Honeycutt stated that CSO is ready to support Soyuz-31.
- E. Integrated Network Summary. Mr. Pifer provided an IN summary.
1. Mr. Pifer reviewed the requirements/test matrix. Mr Pifer noted the proficiency simulations have been added to the matrix.
  2. Mr. Pifer reviewed the one risk (VHF-2). VHF-2 is not periodically End-to-End (ETE) tested. The Federal Aviation Administration (FAA) has refused to allow the use of the restricted frequency for periodic VHF-2 system validation. The last VHF-2 ETE Comm check was performed in September 2004. This is a very low risk. Stations can conduct testing via a dummy load, but cannot radiate. This is an accepted risk.

## **BOARD COMMENTS**

Ms. Dent polled the Review Board for their comments. All the board members stated that the network is ready to support Soyuz-31 pending closure of the action item and any TBDs.

## **ACTION ITEM REVIEW**

No action items were assigned at the May 30, 2012, Soyuz-31 MORR.

## **RFA REVIEW**

No RFAs were assigned at the May 30, 2012, Soyuz-31 MORR.

(Original Approved By)

James A. Bangerter  
GSFC/NASA/450.1  
HSF ND

Fred Pifer  
GSFC/HSF