

SUBJECT: STS-133 Operational Readiness Review (ORR) Minutes

DATE: September 1, 2010

PLACE: GSFC, Building 8 Auditorium

TIME CONVENED: 9:00 a.m. TIME ADJOURNED: 11:00 p.m.

ATTENDANCE

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WELCOME/INTRODUCTION

Mr. Jim Bangerter convened the September 1, 2010, STS-133 Operational Readiness Review (ORR) to assess the readiness of the Integrated Network (IN) to satisfy the requirements for the STS-133 mission (refer to the presentation package, *STS-133/ULF5 GSFC Operational Readiness Review*).

The STS-133 Review Board members are as follows:

- Mr. Ken Lehtonen, GSFC, Code 301, Systems Review Office.
- Mr. John Hudiburg, GSFC, Code 599, 450 Senior Technical Authority.
- Mr. Scott Greatorex, GSFC, Code 450.1, Chief, Networks Integration Management Office.
- Mr. Dennis Woodfork, GSFC, Code 595, Navigation and Mission Design Branch.
- Mr. Bradford Torain, GSFC, Code 760, Chief, Communications & Security Services Division (CSSD) (Mr. Scott Douglas signing for).
- Mr. Joe Aquino, JSC, Manager, KSC DD13, Space Communications Integration Office (Ms. Jewel Hervey signing for).
- Mr. Gary Morse, KSC, Space Communications and Integration.
- Mr. Kevin McCarthy, GSFC, Code 453, Ground Network Project.
- Mr. Donald Shinnery, GSFC, Code 452, Space Network Project.
- Mr. Mike Yettaw, DFRC, Range Technical Monitor, Western Aeronautical Test Range (WATR).

WELCOME

Mr. Jim Bangerter provided a welcome to the attendees. He noted that this was the beginning of the Space Shuttle mission preparation reviews: there are three other reviews after the Goddard Space Flight Center (GSFC) ORR. The three are the Johnson Space Center (JSC) Mission Operations Directorate (MOD) Flight Readiness Review (FRR); the Space Shuttle Program (SSP) FRR; and the Agency FRR. Mr. Bangerter stated that this ORR will use the Request For Action (RFA) and action item process.

Mr. Bangerter noted that it has been some months since the last Space Shuttle mission and this ORR will look at the work that has been done and the work that has yet to be done. He stated that the next 6 months will be very busy as there are two Soyuz flights, a SpaceX flight, Automated Transfer Vehicle (ATV-2) mission, and STS-133 in the that time period. Mr. Bangerter noted that he had received the mission plaque to hang in the Network Integration Center (NIC).

Mr. Bangerter noted that GSCF and NIC were going to be an element of an upcoming Bravo network Top Chef episode and a clip from that episode was played for the attendees.

Mr. Bangerter took a moment to recognize the passing of one of the senior members of the HSF Team, Mr. Thomas Franklin. Mr. Franklin was responsible for much of the testing conducted in preparation for missions including the Space Network (SN) Ver/Vals. His passing was unexpected and he will be missed. The support provided by the NIC to STS-133 will be dedicated to the memory of Mr. Franklin.

STS-133 MISSION OVERVIEW

Ms. Melissa Blizzard provided an STS-133 Mission Overview.

- A. Mission Highlights. Ms. Blizzard reviewed the mission highlights. The launch is currently scheduled for November 1, 2010. This is a 51.6-degree inclination launch. The primary payloads are the EXPRESS Logistics Carrier (ELC4) and Permanent Multi-Purpose Module (PMM). Ms. Blizzard reviewed the End of Mission (EOM), Transoceanic Abort Landing (TAL), and Abort Once Around (AOA) prime and weather alternate landing sites. The landing is currently scheduled for November 12, 2010. This is an 11 + 1 + 2 day mission.
- B. International Space Station (ISS) Assembly Sequence. Ms. Blizzard reviewed the ISS assembly sequence. This is flight ULF5.

SPACE SHUTTLE INTEGRATED NETWORK OVERVIEW

Ms. Blizzard provided the IN overview.

- A. Space Shuttle IN Overview Chart. Ms. Blizzard reviewed the chart illustrating the network elements and their relationships. The IN configuration is the nominal configuration. There have been two changes to the configuration. The Air Force Satellite Control Network (AFSCN) has been removed and Tracking and Data Relay Satellite (TDRS) East has been added as backup for TDRS Spare for ascent.
- B. IN Coverage Chart. Ms. Blizzard reviewed the IN network coverage chart. The diagram includes the timeline for the STS-133 Extra Vehicular Activities (EVA). Two EVAs are planned.
- C. Significant STS-132 Anomalies and Issues. There was one In Flight Anomaly (IFA) during STS-132. There was one significant STS-132 issue.
 1. IFA-132-G-001. The White Sands Ground Terminal (WSGT) Guam Data Interface System (GDIS) experienced a Channel Traffic Interface (CHATTI) card fault. The initial fault caused an 8-minute loss of CH-3 video. There was no impact to CH-1 or CH-2. The White Sands technician recycled GDIS without the proper coordination causing the loss of all Forward and Return services. There was a 6 minute 3 second Ku-band Single Access (KSA) Forward/Return and S-band Single Access (SSA) Forward/Return data loss. A Root Cause and Corrective Action (RCCA) was conducted. This is classified as an Operator Error (OE).
 2. Significant Issue. There was no K-band Return during a Virtual Spacecraft event on TDS. There was a 4 minute 53 second data loss. It was discovered that the Second TDRSS Ground Terminal (STGT) was configured properly; subsequent TDS Virtual Spacecraft tests were successful and all troubleshooting efforts were exhausted. The cause of the problem is not known and this item has been closed.
- D. Program Requirements Document (PRD) Changes. Two PRD changes have been made to Shuttle Volume 1. Dual TDRSS support for ascent has been added and two additional voice loops were added (SITE COORD 1 and SITE COORD 2). SITE COORD 2 is a test loop.
- E. Network Changes for STS-133. Ms. Blizzard reviewed network changes for STS-133.
 1. Wallops Range Control Contract. The Wallops 7M antennas, Ultra High Frequency (UHF), and C-band radars are under the new Range Operations Control (ROC) contract. The Wallops Ground Site (WGS) 11M antenna and Very High Frequency (VHF) equipment remains under the Near Earth Networks Services (NENS) contract.

- There is a new scheduling interface through a new scheduling office. No impact to support is anticipated. Ms. Blizzard stated that the new scheduling office will be added to all scheduling messages.
2. AFSCN/Space Development and Test Wing (SDTW) Support. The AFSCN Remote Tracking Sites (RTS) no longer support Space Shuttle due to the Onizuka Air Station (OAS) closure. Mr. John Hudiburg stated that the sites were used for launch and ascent support, but were also used during the Ku-band antenna failure. If the Ku-band service is lost again, how will the network handle the increased load? Ms. Blizzard stated that the ground sites will be relied on. Mr. Hudiburg asked if the percentage support loss is known. Mr. Bangerter replied that the Air Force took a total of approximately 37 passes and this included launch support (or approximately 25 passes for the Ku-band service loss). The issue was identified to the program. The program was ready to take the risk; at the time, there was the possibility for one mission, but now it is a possibility for two – possibly three missions. JSC has received analysis from the INCOs and the risk has been accepted. The current ground network (Dryden Flight Research Center [DFRC], Wallops Flight Facility [WFF], and Santiago [AGO]). During the failure, AGO did take additional passes during extended operations hours. Mr. Hudiburg asked if the AFSCN is available for emergency use. Mr. Bangerter stated that the AFSCN is not; there is no connectivity. The program has accepted the risk.
 3. Dual TDRS Ascent Support. The SN will provide dual TDRS support for launch and ascent. This will provide operational redundancy to cover the loss of the AFSCN.
 4. SN TDRS Apportionment. Apportionment is effective the week of September 27, 2010. Apportionment will not have much impact on Space Shuttle and International Space Station (ISS) support.
 5. NASA Integrated Service Network (NISN) Contract Change. The GSA FTS-2001 contract is ending and services will be transitioned to the new GSA Network contract. Mr. Kevin McCarthy asked when the cutover will take place. Mr. Scott Douglas stated that the contract has been awarded and for the most part, the transition is a paperwork transition; although, there will be some service transitions. Mr. Bangerter stated that technical changes are being coordinated with the HSF team. The few HSF services are in transition at this time.
- F. Documentation. Ms. Blizzard reviewed the mission documentation list. Generic documentation is up to date. Several documents were recently updated. The matrix shows the Interim Support Instructions (ISI) that are prepared and ready at this time and their scheduled transmission time and the ISIs that are still in preparation. Mr. McCarthy asked if the 451-CAP-GSFC-HSF had been reviewed for the AFSCN and other changes. Ms. Blizzard stated that it has not. Ms. Blizzard accepted an action item to review the 451-CAP-GSFC-HSF document for changes to the network (e.g., ROC, AFSCN, Network, etc.) and update the document as necessary (action item STS-133 ORR-01). Mr. Morse asked how the dual TDRS support will be documented and Ms. Blizzard replied that the support will be documented via ISI.
- G. Potential Launch and Scheduling Conflicts. Ms. Blizzard stated that there are two Expendable Launch Vehicle (ELV) launches during the STS-133 timeframe; A Delta II and an Atlas-V I launch. SN resource conflicts are addressed according to the SN Priority List. Human Spaceflight (HSF) Network Operations Managers (NOM) and

ELV/Robotics NOMs work to resolve resource conflicts during Space Shuttle testing/mission support periods.

GSFC BASE UTILITIES AND MISSION SUPPORT FACILITIES

Mr. Todd Sanders provided the base facilities status. Mr. Sanders reported that there are some recent changes to the West Campus status. The commercial power status is now Yellow. A transformer in Building 3/13/14 is out of service and there is a 2 – 3 week lead time to get parts. This means that there are only 2 commercial power feeds. The chillers status is Yellow. There has been a failure on one diesel chiller. There is a 3 week lead time to get parts. The Uninterruptable Power Supply (UPS) Preventive Maintenance (PMs) are in progress. There are no issues on the East Campus. Mr. Hudiburg stated that there has been a fire at the Deep Space Network (DSN) Madrid station due to a generator issue. He asked if this could happen at GSFC. Mr. Sanders answered the GSFC plant is automated (cool down, startup, and shut down). Mr. John Hudiburg accepted an action item to provide a copy of the DSN/Madrid fire report to the GSFC Base Facilities organization (action item STS-133 ORR-02). (Editor's Note - Mr. Hudiburg supplied an email from DSN concerning their generator incident. If he receives an official failure review board report, he will distribute via 450's staff meeting. This action item is **CLOSED**.) Mr. Todd Sanders accepted an action item to provide Mr. Bangerter with a facilities status for the commercial power repairs on the West Campus (action item STS-133 ORR-03). Staffing is sufficient to meet all requirements. Mr. Sanders stated that GSFC base utilities and mission support facilities are ready to support STS-133.

INTEGRATED NETWORK ELEMENT STATUS

Representatives from the IN elements provided an element status and support readiness statement.

- A. GSFC NIC. Mr. Melvin Calhoun provided a NIC Status. There have been operational software changes; the Mission Operations Support Area Replacement (MOSAR) 3.0 and Event Clock Display System (ECDS) software were installed. There are no open Discrepancy Reports (DR). The DRs were closed due to the software installations. Mr. Calhoun reviewed the three hardware updates. There is one Freeze Exemption Request (FER). Facilities are Green. Staffing is sufficient to meet all requirements. Mr. Hudiburg asked if there are any personnel who have never supported a Space Shuttle mission and Mr. Calhoun stated that there are not. Mr. Calhoun stated that the NIC is ready to support STS-133.
- B. Flight Dynamics Facility (FDF). Mr. Warren Mitchell provided an FDF status. There have been no software or hardware changes since STS-132. There are no open DRs. Facilities are Green. Staffing is sufficient to meet all requirements. FDF will not staff during the docked operations crew-sleep periods. Mr. Mitchell stated that FDF is ready to support STS-133.
- C. NISN/NASCOM. Mr. Randy Honeycutt provided a NISN/NASCOM status.
 1. Mr. Honeycutt discussed the operational changes.
 - (a) The GSA FTS-2001 contract is ending and services will be transitioned to the new GSA Networx contract.
 - (b) Existing HSF services that will require a change in AT&T's equipment for monitoring capabilities are the Kennedy Space Center (KSC)/Ponce deLeon (PDL) T-1 and GSFC/AGO T-1. MILA/PDL preparation work has been done at

KSC. The Channel Service Units (CSU) will be replaced at PDL. This work will be coordinated with the Merritt Island Launch Annex (MILA). Mr. Morse stated that this needs to be completed soon (No Later Than [NLT] September 17). MILA is scheduled to participate in Shuttle Training Aircraft (STA) flybys. Mr. Honeycutt stated that if the work is not done this month, it will be held off. Mr. Joe Aquino asked if there is a cutoff date and Mr. Morse stated that it would be September 21. AGO preparation work is complete at GSFC. The AGO schedule is being worked. This may not be complete prior to STS-133.

- (c) Existing HSF services that will require a change from current carrier to AT&T are the GSFC/State Dept. voice, GSFC/White House voice, and WSC/Guam DS-3s. The DS-3s will probably not be transferred by STS-133. Mr. Bangerter asked if the services will be on different routes. Mr. Douglas stated that NISN is working with AT&T so that all diversity requirements special needs are met. Mr. Aquino asked if the new services will be on DS-3s or provide additional bandwidth and Mr. Douglas replied that the services will be on DS-3s.
 - (d) Mr. Honeycutt reviewed the software changes. The Mission Operations Voice Enhancement (MOVE) software versions 1.5.6/1.6.0 upgrade will be deployed soon; the vendor is working some minor issues. The vendor is conducting testing in its laboratory. Software 1.5.6 was deployed on the Building 32 backup off-line switch. Software 1.6.0 will be deployed on the Building 32 backup off-line switch. Once successfully tested on the backup off-line switch, the software will be deployed on the on-line switch. Mr. Greatorax asked how long the software will be tested prior to deployment to the prime switch. Mr. Douglas replied that NISN has a test plan and will conduct full testing and will put the necessary resources on the testing to complete it prior to the Terminal Countdown Demonstration Test (TCDDT). The Small Conversion Device (SCD) release 6.2 (H-I) will be deployed prior to TCDDT. The Juniper routers software has been upgraded for OC-12s. Mr. Yettaw asked if there are spare routers on site and Ms. Stewart replied that there are spare cards, but not routers. Mr. Shawn Belton stated that there is redundancy built into the router itself, including power supply.
 - (e) Mr. Honeycutt reviewed the hardware changes. MOVE GSFC elements have been transitioned. AGO will not be on MOVE. The OC-12s infrastructure has been upgraded. Once accepted by NISN/NASCOM for operations, times will be coordinated with the sites for transition services. A new 1 GB diverse service has been installed between GSFC and WGS. Wallops purchased the service. This will provide External Tank (ET) TV diversity.
2. There are no current open Problem Management Dispatch System (PMDS) items.
 3. Facilities are Green.
 4. Staffing is sufficient to meet all requirements.
 5. NISN will process all FERs during the mission in accordance with NISN SOP-002.
 6. Mr. Honeycutt stated that NISN is ready to support STS-133.
 7. Mr. Bangerter asked if there will be time for parallel operations for the Guam DS-3 cutover. Mr. Belton stated that the existing DS-3s are MCI/Verizon. The new DS-3 will be AT&T. There will be no opportunity for parallel operations. Mr. Douglas stated that one service can be cut in at a time. Mr. Bangerter stated that he would like to see the Guam DS-3 schedule and transition plan. Mr. Scott Douglas accepted an

action item to provide a copy of the NISN Guam DS-3 schedule and transition plan (action item STS-133 ORR-04). Mr. Belton stated that there are no plans to turn the services down immediately, but Mr. Douglas advised that the time period being discussed is in days not weeks. He stated that discussions have started between NISN and the SN.

- D. WGS. Mr. Mark Harris provided a Wallops status. Mr. Harris reported that he 11M antenna Slave software version 1.7 was installed in June. The transition to the upgraded Windows XP version of the Wallops Orbital Tracking Resource Scheduler (WOTRS) running on a MAC operating system has been completed. It was stated that the Space Shuttle email schedule ingest will be automated. The Antenna Control Unit (ACU) operating system security patch install is scheduled for September. Mr. Harris reported that vendor has completed work to correct a pointing offset between program track and auto track. There are two DRs in work. Neither of these has had any impact on Space Shuttle operations in the past. Facilities are Green. Staffing is sufficient to meet all requirements. Mr. Harris stated that WGS is making preparations for the hurricane and is prepared to stow the assets if required. Mr. Harris stated that WGS is ready to support STS-133.
- E. Wallops Range. Mr. Robert Hurley provided a Wallops Range status. Mr. Hurley stated that he is the COTR for the new range contract. There have been no operational changes since STS-132. There are no open DRs. Facilities are Green. Staffing is sufficient to meet requirements. Mr. Mark Lamberson stated that Wallops is prepared for the Hurricane. Mr. Morse asked about the Wallops power down procedures. Systems are normally powered down at the end of the day, but for hurricanes, the power down is more extensive (transformers will be moved from areas that could experience water damage). Mr. Hurley stated that the Wallops Range is ready to support STS-133. Mr. McCarthy asked about any scheduling office changes, which had been mentioned earlier during the ORR. Mr. Hurley stated that there will be no impact. The scheduler has been at Wallops for some time and works closely with Ms. Debbie Dukes and Ms. Sharon Siggers.
- F. AGO. Mr. Luis Goñi provided an AGO status. The security driven NT-Programmable Telemetry Processor (PTP) replacement unit software patch has been installed. The Lunar PTP has experienced errors in the 1024-kbps data. The other PTP was connected and experienced the same errors. More testing is planned. There have been no hardware changes. There are no open DRs. Facilities are Green. Staffing is sufficient to meet all requirements. Mr. Goñi stated that AGO is ready to support STS-133.
- G. MILA/Ponce DeLeon (PDL). Mr. Terry Alvarado provided a MILA/PDL status. The PDL generator Remote Control Interface (RCI) screen was implemented. AT&T will replace the PDL T-1 CSUs. This will be coordinated. The PDL Strip Chart Recorder has been upgraded to new digital recorder. The Kennedy Forward/Return Link (KFRL) will shadow the 1024-kbps Solid State Recorder (SSR) dumps to the RPS. MILA will remain prime and there will be no station configuration changes. There are no open DRs. Facilities are Green. Staffing is sufficient to meet all requirements. MILA has conducted training for its technicians; enhancing training with course work and proficiency simulations. He noted that the Station Manager has retired. Mr. Morse stated that the Station Manager duties are being covered by the Operations Manager. Mr. Alvarado stated that MILA/PDL is ready to support STS-133.

- H. SN. Mr. Johnny Chavez provided an SN Status.
1. There were three SN software deliveries. The Space Network Access System (SNAS) release 4 transition is planned for October.
 2. MOVE will replace the Multi-Conference Digital Switch (MDS) system at WSC. Cutover is planned for December 2010.
 3. The antenna Sub-System Controllers (SSC) are being replaced. The CPU platform is being updated. Six units in Space-to-Ground Link terminal (SGLT)-3 are being tested. STGT installation is planned for December 2010.
 4. TDRSS Operations Control Center (TOCC) upgrade continues.
 5. GDIS-R transition is scheduled to be complete September. Mr. David Glasscock is the technical Point-of-Contact (POC).
 6. Mr. Chavez reviewed the DRs. The Stat Mux and Guam Remote Ground terminal (GRGT) DRs are closed.
 7. Mr. Chavez reviewed the status of the TDRSS fleet.
 - (a) TDRS-4 (TDS) Power System Degradation. STS-133 will not fall within the current eclipse season.
 - (b) TDRS-4 Telemetry Errors. TDRS-4 downlink has been experiencing irregular, apparently random telemetry errors. A spare Traveling Wave Tube Amplifier (TWTA) is available.
 - (c) TDRS-4 (TDS) K-band Single Access (KSA)-2 Forward Power. The power is below specification. A spare TWTA is available.
 8. Facilities are Green except for HVAC, which is Yellow, but there is sufficient equipment to carry the load.
 9. Staffing is sufficient to meet all requirements.
 10. Mr. Chavez stated that the SN is ready to support STS-133.
- I. KSC Communications Data and Switching Center (CD&SC). Ms. Monique McLamb provided a CD&SC status. There have been no software upgrades. KFRL will be prime for real-time Orbiter Downlink (OD) to the Launch Processing System (LPS)/RPS. KFRL will be prime for command verify. There are no open DRs. Facilities are Green. Staffing is sufficient to meet all requirements. Ms. McLamb stated that KSC CD&SC is ready to support STS-133.
- J. NASA/DoD C-bands (Eastern Range) ER. Mr. Mike Gawel provided the ER resources status.
1. DoD radars (includes Eastern Range [ER], Western Range [WR], White Sands Missile Range [WSMR], and Jonathan Dickinson Missile Tracking Annex [JDMTA]). There have been no operational changes since STS-132. There are no open DRs (Morrell Operations Center [MOC] only). Facilities are Green. Staffing is sufficient to meet all requirements.
 2. NASA Radars (DFRC and WLPS). There have been no software operational changes since STS-132. Depot Level Maintenance (DLM) for DFRC is scheduled for September 9 – 20. There are no open DRs. Facilities are Green. Staffing is sufficient to meet all requirements.
 3. Readiness. Mr. Gawel stated that ER resources are ready to support STS-133.
- K. DFRC. Mr. James Pavlicek provided a DFRC status. There have been no operational changes since STS-132. There is one open DR. The Long Range Optics (LRO)/pedestal control was lost. The manufacturer is at DFRC. This is a larger problem than originally

thought and it is not known when the system will be up. The network will be kept advised of the status. There are no open Configuration Change Requests (CCR). Facilities are Green. Staffing is sufficient to meet all requirements. Mr. Pavlicek stated that DFRC is ready to support STS-133. Mr. Morse asked about the DFRC – MILA telemetry problem. Ms. Blizzard stated that this item is being worked. There was not time to include this item in the ORR presentation. Retesting is scheduled. It appears that the 1024-kbps data got to KSC, but did not get to MILA.

- L. WSSH. Mr. Pat O'Donnell was not available and Ms. Blizzard provided the WSSH status. There have been no operational changes since STS-132. There are no open DRs. Facilities are Green. Staffing is sufficient to meet all requirements. Ms. Blizzard stated that WSSH is ready to support STS-133.

INTEGRATED NETWORK SUMMARY

- A. Freeze Plan for STS-133. Ms. Blizzard reviewed the freeze plan which listed the IN elements and the freeze period for each element. The freeze plan is unchanged from the previous mission.
- B. Testing Overview. Ms. Blizzard reviewed the testing overview for STS-133. The SN and Ground Network (GN) are verified using a standard sequence of tests.
- C. Network Test Plan and Service Requirements/Test Matrix. Ms. Blizzard stated that these illustrate the testing needed to ensure that requirements are met. Testing has not been completed at this time, as it is not within the test window.
- D. Proficiency Testing Since STS-132. Ms. Blizzard stated that this is a new chart. There has been some time between missions and the network has worked to maintain its proficiency. Mr. Morse asked if the dual TDRSS ascent support will be included in the exercises. Mr. Calhoun stated that most of the testing to date did not (there was some testing). Mr. Bill Foster stated that the scenario will be included in the upcoming Shuttle Training Aircraft (STA)/Portable Spacecraft Simulator (PSS) testing.
- E. SN Ascent Configuration – Testing. Ms. Blizzard reviewed the current testing to date. A MILA launch simulation was conducted in August. Testing with the Electronic Systems Test Laboratory (ESTL) was conducted in August as well. Two additional tests are planned. Mr. Foster stated that both events will begin with PN spreading 'On' and at negative return, a Ground Control Message Request (GCMR) will be sent to turn TDS to 'Off' to match the Orbiter. Mr. Hudiburg asked if there will be any Power Flux Density (PFD) exceeded and Mr. Bangerter stated that he does not know. The configuration is being discussed with the spectrum managers, Ms. Cathy Sham and Mr. Roger Porter.
- F. Risks. Ms. Blizzard reviewed the network risks. There are four risks.
 - 1. Network Command Processing System (NCPS) at MILA/WGS/DFRC. Ms. Blizzard stated that this risk has been mitigated. The NCPS were replaced at Wallops and DFRC and spares were sent to MILA. Mr. Bangerter stated that this risk can be **CLOSED**.
 - 2. TDRS Spacecraft Naming Convention. If TDZ is down and JSC space Shuttle Scheduler is unable to load TD-171 into the Shuttle Table, then there is a communications safety risk. The short-term mitigation is to ensure that the name of the satellite and/or the location of the satellite when used is clearly defined and communicated. The long-term mitigation is to change the TDRS spacecraft names to reflect the location or another unilaterally agreeable identifier. Space Shuttle

continues to fly with workarounds. Mr. Morse asked the status of this item. Mr. Bangerter stated that the last communication he had was that the SN contractor sent out a questionnaire and data was collected and submitted to the SN, but there has been no determination as to a plan. Mr. Rob Manley stated that this work was performed under TO 65. Mr. Bangerter asked if there were any customers other than Space Shuttle who had an issue and Mr. Manley stated that he was not aware of any and that some customers did want any changes made. Mr. McCarthy stated that the comments section for this risk should be updated.

3. NISN MOVE Failure. If the MOVE system switch experienced a failure at the connection point to the system interface cards, then the switch would fail which would impact GSFC local elements and NIC who will lose voice contact with their customers and supporting elements. As mitigation, meet-me numbers or direct black phone numbers will be provided for all missions that have critical voice requirements. The prime MOVE switch does have some internal redundancy; however, there is no MOVE backup switch to provide overall redundancy. Mr. Scott Douglas asked why this risk was written. There was no redundancy for the Voice Distribution System (VDS) which had the same issue. The keysets have been allocated with diversity. MOVE provides the same capability or better. Mr. Bangerter replied that there probably should have been a VDS/Voice Switching System (VSS) risk. Ms. Vicki Stewart stated that there has been discussion related to the MOVE switch in Building 32 as the backup MOVE switch and this is not true. The Building 32 switch is a test bed and does not provide the same functionality. She raised the question as to why the NISN MOVE switch is a risk while other MOVE switches are not. Mr. Bill Foster stated that DVIS does have a backup and Mr. Yettaw stated that DFRC has a backup as well. Ms. Stewart stated that Headquarters has not identified the MOVE switch as a risk. Mr. McCarthy suggested that the risk could be updated to 'Accepted'. Mr. Bangerter stated that the risk will be updated. The risk was written as a result of a Subtec III review. Ms. Stewart stated that she has tried to schedule a meeting to discuss the risk, but the invited participants have not been available, but the invitation is still open. Mr. Bangerter stated that there has been some debate as to whether the risk should be written, but this is a new system and there has been new insight into how the system works. Because a risk was not written previously (i.e., VDS/VSS), it is not a criterion for not writing a risk now. Mr. Honeycutt asked why risks were not written on other centers without backup. Ms. Melissa Blizzard accepted an action item to review the voice systems at the different network elements and identify risk (action item STS-133 ORR-05).
4. MILA – Increased Risk of Operator Errors. If MILA experiences a significant loss of certified operations personnel before the planned end of the Space Shuttle program, then OEs and loss of real-time data may occur. MILA has taken action to mitigate this issue via increased training and proficiency exercises and the use of senior personnel to staff critical positions. This risk has been identified as being Low. Mr. Morse stated that this risk write-up is old. NASA/NENS have a newer MILA Attrition version. Mr. Morse accepted an action item to provide a copy of the updated MILA Attrition risk to Ms. Melissa Blizzard for inclusion in future ORR packages (Mr. Morse will provide updates as they occur) (action item STS-133 ORR-

- 06). (Editor's Note – Mr. Morse provided the risk on 09/01/10. This action item is **CLOSED**.)
5. AFSCN. Mr. McCarthy stated that the loss of the AFSCN should be carried as a risk. This is especially true considering the loss of the Ku-band on the previous mission. The risk can be shown to be accepted by the program. Mr. Bangerter stated that this is an issue due to the Ku-band loss. Mr. McCarthy stated that it may be a Low risk, but should be carried until the end of the Space Shuttle program. Mr. Foster stated that the program has accepted the risk and steps taken to mitigate the risk (e.g., dual TDRSS ascent support); however, there is an opportunity for loss of OMS2 burn data. Mr. Aquino stated that this is a program and not a network risk and is carried by the program. Mr. Jim Bangerter and Ms. Melissa Blizzard accepted an action item to review the Space Shuttle Program (SSP) program risk for the loss of AFSCN support (especially in regards to Ku-band loss of support or Orbital Maneuvering System (OMS2) burn data loss) and determine if a network risk is needed; if so, write a network risk (action item STS-133 ORR-07). Mr. McCarthy stated that the ORR presentation should be updated to provide additional information as discussed at this ORR.

REVIEW BOARD DISCUSSION

- A. Mr. Hudiburg asked about the status of the DFRC radar, which was mentioned but not discussed. Ms. Blizzard stated that the item was moved to the ER section. Mr. Hudiburg asked if there are any items, that Ms. Blizzard is aware of, that are not in the package. Ms. Blizzard replied that there are not.
- B. Mr. Hudiburg asked if the Flight Rules will be updated for the dual TDRSS ascent support. Mr. Foster stated that Generic and Launch and Landing rules will not be updated. The STS-133 annex will be updated. The support is not a 'No Go' item.

REVIEW BOARD CERTIFICATION

The STS-133 ORR Review Board signed the Certificate of Flight Projects Directorate Networks Readiness certifying that, with successful completion of flight readiness preparations and closure of associated action items, all integrated network elements are ready to support the STS-133 flight. All board members stated that the IN was ready to support with the closure of the open items.

RFA REVIEW

No RFAs were assigned at the September 1, 2010, STS-133 ORR.

ACTION ITEM REVIEW

The following action item was assigned at the September 1, 2010, STS-133 ORR.

<i>Action Item Number</i>	<i>Assignee(s)</i>	<i>Action</i>	<i>Due Date</i>
STS-133 ORR-01	Melissa Blizzard/ GSFC/HTSI/HSF	Review the 451-CAP-GSFC-HSF document for changes to the network (e.g., ROC, AFSCN, Networx, etc.) and update the document as necessary.	09/24/10
STS-133 ORR-02	John Hudiburg/ GSFC/NASA	Provide a copy of the DSN/Madrid fire report to the GSFC Base Facilities organization.	CLOSED
STS-133 ORR-03	Todd Sanders/ GSFC/NASA	Provide Mr. Jim Bangerter with a facilities status for the commercial power repairs on the West Campus.	10/15/10
STS-133 ORR-04	Scott Douglas/ GSFC/NASA/ NISN	Provide a copy of the NISN Guam DS3 schedule and transition plan.	09/30/10
STS-133 ORR-05	Melissa Blizzard/ GSFC/HTSI/HSF	Review the voice systems at the different network elements and identify risk.	10/15/10
STS-133 ORR-06	Gary Morse/ KSC/NASA	Provide a copy of the updated MILA Attrition risk to Ms. Melissa Blizzard for inclusion in future ORR packages (Mr. Morse will provided updates as they occur).	CLOSED
STS-133 ORR-07	Jim Bangerter/ GSFC/NASA/ HSF ND, Melissa Blizzard/ GSFC/HTSI/HSF	Review the SSP program risk for the loss of AFSCN support (especially in regards to Ku-band loss of support or OMS2 burn data loss) and determine if a network risk is needed; if so, write a network risk.	10/15/10

(Original Approved By)
Ken Lehtonen
GSFC/NASA/301

Jim Bangerter
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