

DATE: March 30, 2011

SUBJECT: NSG SN Scheduling Minutes

LOCATION: JSC, Regents Park III

ATTENDANCE:

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INTRODUCTION

Mr. James Bangerter convened the March 30, 2011, Network Support Group (NSG) Space Network (SN) Scheduling meeting to discuss White Sands Complex (WSC) SN scheduling concerns.

MEETING

- A. During the Automated Transfer Vehicle (ATV)-2 mission, there was a rescheduling issue due to the launch scrub. A Root Cause and Analysis (RCCA) was opened. Data on the launch slip was provided via email for the 16th launch date. Minutes prior to the launch on the 15th the launch was scrubbed. Tracking and Data Relay Satellite System (TDRSS) critical support was canceled. Within hours of the scrub, new TDRS critical event requests were sent. Johnson Space Center (JSC) began working with WSC Scheduling until JSC time 10:00 p.m. JSC worked until they knew there would be no more responses until the next morning. Some events got scheduled while others did not.
- B. Mr. Bob Hudgins stated that work continued until late in the day, but a lot was not concluded. He noted that priority customers want to try and cover the passes lost and that many of these customers are not available 24x7. The schedulers did not get inputs back and had to wait until the next day.
- C. Mr. Alberto Pallarez stated that JSC sent ATV critical periods that had the first three passes with additional requests. There was not much that could be accomplished on the mid shift.
- D. Mr. Venable stated that he understood the issue with the last requests and that work had to wait until the next day. The following day the scheduling activity began again and it got very close to the launch. There were significant gaps in the window. ATV pressed the Flight Director (FD) and stated that the TDRSS coverage was a criterion for launch GO/NO GO. ATV eventually got the requested events.
- E. Ms. Elizabeth Clark stated that ATV was going to get the events they needed. The network did not realize that the events further out (9 hours) had to be scheduled or ATV would declare GO/NO GO. Mr. Bob Culbertson stated that no one was aware of that. He stated that we are now aware of the ATV expectation. ATV did have their times for the next day and the request was for full communications for 9 hours. When scheduling Space Shuttle, we know that we will get the events later in the scheduling process. He thanked WSC Scheduling for the effort they put in and stated that he too understood the constraints on the mid shift.
- F. Mr. Bangerter stated that we need to better educate our Visiting Vehicle (VV) partners and provide them with an insight into the real-time scheduling process. Mr. Culbertson stated that this was part of the ATV Lessons Learned. We scheduled as far out as we can and as quickly as we can.
- G. Mr. Hudgins stated that the first three orbits are scheduled quickly and beyond that, we work within a 48-hour window to accommodate the other customers. It takes time to schedule the first 12 hours after a slip. The customers will not give up beyond three passes until the launch has occurred.
- H. Mr. Culbertson remarked that if there is an issue, Mr. Bangerter can be contacted to work the issue. Mr. Bangerter stated that contacting him to work the issue at the last minute is a last resort. If the 9-hour requirement had been known, it would have been worked.

- I. Mr. Venable stated that ATV used the GO/NO GO as launch approached. He stated that JSC is pushing ATV to define a Flight Rule to define a time from launch and what is GO/NO GO. Mr. Bangerter agreed, stating that we know a process can be put in place. If known, there can be the proper pre-coordination. Launch has a high priority. We do not want to scrub due to the inability to schedule an event.
- J. Mr. Venable stated that ATV was informed of the difficulty of scheduling in the real-time window. There were still issues with their planning. We were under the impression that ATV did understand.
- K. Mr. Bangerter stated that the network needs to lay out the rules for ATV. They need to understand that they have to work within our scheduling system. There are some things that we cannot change. When scheduling Space Shuttle, the requests are scheduled, but not right away. Events will get scheduled after launch. If necessary, Mr. Bangerter will get it. He has an agreement with the customers, but they do not want to give up an event and then have to replan.
- L. Mr. Bob Marriott stated that the Flight Rule has to state the launch commit criteria. If the criteria are not in the Flight Rule and they threaten to scrub, they have no basis to stand on.
- M. Mr. Bangerter stated that once the Flight Rule is updated, a meeting can be scheduled with ATV to review the process. ATV needs to understand that there are other customers on the network, but that they will get their events.
- N. Mr. Venable stated that as part of the RCCA analysis, ATV does have the ability to use S-band Multiple Access (SMA). JSC is pushing that option. This would reduce the scheduling stress by opening up more communications options.
- O. Mr. Tom Elliott stated that the 9 hours was one item, but that requests for critical events were received for 2 days. Mr. Pallarez stated that 23 events were resolved. There were 5 CDRs.
- P. Mr. Venable stated that the RIOs worked with the FDs. ATV was told that they would receive communications and the ATV FD had to concede that they did. Mr. Culbertson stated that this experience will help ATV to learn to trust the network when they are told that they will get their communications.
- Q. Mr. Rich Romansky stated that WSC had the file for a one-day slip. The priority customers had the file as well. When the CDR is sent over, the customers need some time too.
- R. Mr. Bangerter stated that when the launch is near the end of the day, we need to know prior to the launch what the plan is should there be a slip. At what point will the Spaceflight Mission Manger (SMM) go to the Network Director (ND) to talk to the customers? Mr. Culbertson stated that if we get launch commit criteria, then it should not get to the point that we need the ND to negotiate.
- S. Mr. Romansky noted that during this time there was a WSC software delivery and WSC did not want to schedule 171. In the future, the deliveries will have to be coordinated better so that all assets are available. It was noted that the asset (TDRS-4 SSA-1) was lost and that this was during the eclipse season. Mr. Bangerter stated that ATV needs to be informed that their next launch could occur during an eclipse season and there may be a plan in place to turn on an SN asset if there are problems. The TDRSS constellation could be different in a year. Mr. Hudgins stated that there was also the GLORY launch. There was a lot of activity going on and WSC believes that the scheduling went as well

as it could. WSC was thrown when the JSC Ground Controller (GC) announced that without the passes, we would be in a NO GO situation. Ms. Melissa Blizzard stated that when something like that happens, work through the Goddard Spaceflight Center (GSFC). WSC Scheduling does not need to hear that from the GC. Mr. Bangerter agreed stating that launch criticality statements should come to him.

- T. A discussion was held on JSC scheduling criteria. The duration and tolerances were met, but JSC did not get what was expected (there were some gaps). The question was raised as to why JSC scheduled with a minimum duration. Mr. Venable stated that it is the nature of the SN Access System (SNAS). JSC built up files and went through the profiles to make requests. He asked if the database requires the parameters. Ms. Clark stated that in the forecast, Mr. Elliott does not know you have a conflict until real time. Mr. Bangerter asked if more SNAS education is needed. Mr. Culbertson stated that the problem got corrected quickly. Mr. Elliott stated that Ms. Clark called him and they resolved the issue. Mr. Venable stated that it is not the JSC preference to use the tolerances. Mr. Bob Culbertson accepted an action item to provide Mr. Jim Bangerter with a presentation or list of SNAS parameter items that JSC needs clarified to facilitate further discussion or the formation of a WG (action item 033011-SN Sched-01). (Editor's Note: Mr. Culbertson provided a response and this action item is **CLOSED**.)
- U. Mr. Romansky stated that minimum duration and tolerances allow more scheduling flexibility. Mr. Craig Thompson stated that there are two forums in which these questions can be answered; SN Web Services Interface (SWSI)/SNAS forum and WSC meeting with Merri Benjamin.
- V. Mr. Marriot stated that it is important to get the critical events Interim Support Instruction (ISI) 7 days prior to launch. Mr. Erik Richards stated that the events may not be known 7 days in advance.
- W. A discussion was held on the International Space Station (ISS) Interim Support Instruction (ISI). Mr. Richards stated that some changes are being proposed. He stated that GSFC would like to get away from freezing specific assets such as Single Access (SA) 1 or a specific Space to Ground Link terminal (SGLT). SNAS will reschedule and may to a different asset making the ISI inaccurate.
- X. Mr. David Glasscock stated that he liked the idea, especially when writing hardware/software freeze ISIs. Mr. Romansky stated that the items requiring a freeze need to be discussed as well. Many customers have critical events and some items may be critical, but not require a freeze.
- Y. Mr. Richards reviewed ATV ISI 019. He stated that the freezes occur only during times that JSC says are critical.
- Z. Mr. Romansky stated that it is an 8-hour freeze prior to the event. This process will become more cumbersome for WSC as we approach the upcoming work we have.
- AA. Mr. Richards stated that the process can be streamlined if GSFC requests the times and services to freeze and WSC looks at the equipment. Mr. Glasscock stated that if you select antenna, it gives WSC a better understanding of the request. WSC can then freeze the configuration and work on other assets.
- BB. Mr. Romansky stated that when they create a schedule and then get a replan and WSC is in a freeze it was not before, there is a lot to be done at WSC to meet that.
- CC. Ms. Blizzard stated that the goal is to get an ISI to freeze services without tying up all WSC. Mr. Richards stated that the goal is to put in less detail and let WSC work the

equipment details. Mr. Glasscock stated that WSC reviews ISIs to determine what is impacted. Mr. Bangerter stated that there is also the Freeze Exemption Request (FER) process. He stated that he does not want the SMM to be in the position of picking through the equipment to decide what to freeze.

DD. Mr. Glasscock stated that the ISI should list the services and times.

EE. Mr. Richards stated that GSFC would like to change the initial prelaunch critical period ISIs to be in Greenwich Mean Time (GMT). This would not eliminate the need to redo an ISI in the event of a launch slip, but would help to streamline GSFC process. Mr. Romansky stated that WSC converts Mission Elapse Time (MET) - to GMT.

FF. It was agreed that that Space Shuttle ISIs would remain in MET and VV ISIs would be GMT.

ACTION ITEM REVIEW

One action item was assigned at the March 30, 2011, NSG SN scheduling meeting.

AI No.	Assignee	Action	Response	Status
033011-SN Sched-01	Bob Culbertson/ JSC	Provide Mr. Jim Bangerter with a presentation or list of SNAS parameter items that JSC needs clarified to facilitate further discussion or the formation of a WG.	<p>We held an internal discussion on the use of “duration” and “tolerance” parameters in general to ensure a common understanding. Although we have somewhat limited overall experience within the GC office Dan Leftwich does have a fair amount of knowledge based on his previous TELCOM role. Dan was able to clarify some details and provide an historical perspective regarding the use of the parameters.</p> <p>We reached a conclusion that the way “duration” and “tolerance” parameters were used for the forecast including the ATV launch period was consistent with the way they have been used previously and we were using a provided capability the way it was intended to be used.</p> <p>We do not have a clear understanding of the issue described by Rich Romansky related to this usage. We need a better description of what the actual problem was. We would like to</p>	Closed

AI No.	Assignee	Action	Response	Status
			<p>be part of a solution, if one is needed. But, at this point we believe we are using the capability as designed. We believe Rich may be proposing eliminating the use of these parameters and we would like to better understand the rationale.</p> <p>A telecon will be schedule to further discuss this issue.</p>	

(Original Approved By)
James A. Bangerter
GSFC/NASA/450.1
HSF ND