

The DSS-24 Downtime Readiness Review (DTRR) was held on Monday, September 23. The review board consisted of:

Ken Kimball (chair):  
Fred Battle  
Wayne Sible  
Scott Morgan  
Bob McMahon  
Kim Massey  
Joe Statman  
Joe Wackley  
Al Willems  
Dave Recce

The Review Board charter was to:

- Confirm that all resources and products necessary to accomplish downtime activities are available, and that the downtime modifications can occur with a low degree of risk.
- Confirm that new capabilities resulting from downtime modifications have undergone adequate testing, and that the probability is high that these capabilities will be successfully provided.
- Confirm that no significant degradations to existing functionality or operability will occur as a result of the planned modifications.
- Recommend (to the convening authority) any changes in plan necessary to reduce risks to an acceptable level.

The general consensus of the Board was that there were no major concerns relative to the CCG, Ka-Encoder, and SPT downtime readiness. The Board felt that the downtime plan should be maintained, but re-evaluated following resolution (within the next 3 weeks) of risks associated with the BWG transmitter task readiness, and the testing status relative to NSP products. It should also be noted that the review was held with the understanding the NSP test progress would not be examined in detail, in that a delta-DTRR had already been planned to focus on this area.

A total of 23 RFAs were submitted during the review. These RFAs, in conjunction with review board comments, were the basis for formulating the following recommendations to the convening authority:

**Major Findings (5):**

- The BWG transmitter schedule is very marginal, contains virtually no slack, and documentation is way behind the norm. Re-examine the feasibility of proceeding

with transmitter work at the delta review. Develop contingency plan for dealing with transmitter installation at an alternate time frame. (Action: Osman)

- The NAV interface testing needs additional coordination and real-time support resources. Appoint a lead test engineer to provide focus for test planning, real-time test support, and rapid analysis of test results. (Action: Cangahuala/Frazier)
- Additional work is needed in Demo and PIT test planning to get Projects on board schedule, and for external-agency support during tests. Also need plan for responding to any serious test failures that may occur. (Action: Frazier)
- Training plans for DTT, SPT, and BWG transmitter must be more clearly defined, and indicated on the integrated schedule. Present these plans at the delta-review. Training plans should include the functional definition of sessions, the duration, time-frame, description of the training materials/technique, and recommended attendees (Action: Hodgkin/O'Dea/Thorman)
- UGC software modkit ship dates need to be advanced by at least a week, to allow for DLF/GDSCC processing (Action: Esquivel/Matossian)

#### **Other Findings Requiring Action (7):**

- Clearly identify the test procedures that are used for testing the embedded software in the TXR and Heat Exchanger, and make sure these procedures are referenced in the delivery materials (Action: Losh).
- Check the MSA for the Ka-Encoder spares relative to maintenance support prior to delivery of the network spare in July 03. MSA should identify interim support plan. Update MSA if this support is not currently defined (Action: Sink/Chen).
- Initiate processing of a blanket SODA if this is needed to provide OT support at GDSCC during the downtime (Action: Sosnowski)
- Document plan for weekly status reporting during the downtime period. It should follow the model established by 70m X-band transmitter task, with milestone vs. plan performance metrics (Action: Sosnowski)
- Clarify NOP Status. Review material was inconsistent with previous status reports. Provide quantitative status information (Action: Frazier)
- Clarify status of ETC Alternate Controller (Action: Kurtik/Statman)
- Formalize schedule and commitment to get CDR modifications done in support of DSS-24 reconfiguration. Include CDR mods in the integrated schedule (Action: Markley/Sosnowski).

#### **Observations Categorized As Advisory (9):**

- Software associated with TXR maintenance terminal needs to be identified in 820-061, and delivered in appropriate modkits (Advisory to: Losh)
- MSA for DTT should be reviewed/updated to ensure SUN maintenance is covered by DSCC maintenance contracts (Advisory to: O'Dea)
- Discussion relative to software tables reinforced the need for software table design standards (Advisory to: Kimball)
- System safety certifications must be attached to all hardware and software transfers for products shipped to GDSCC (Advisory to: O'Dea, Sink, Hodgkin, Esquivel)

- UPA swap procedure must be agreed to by Operations (Advisory to: Berry, Larson)
- Plan to move heat exchanger from DSS-26 to DSS-24 needs additional coordination with GDSCC maintenance personnel, and should be put on integrated schedule to ensure no impact of testing activities at DSS-26 (Advisory to: Sosnowski).
- Re-examine the need for new CCG Software modkit. The software modkit process only requires one modkit for the network for identical versions of the software. The OE has responsibility to make copies for different facilities. (Advisory to: Esquivel/Loria)
- Safety plan responsibilities need to be clarified relative to work at DSCCs (Site personnel performing work, vs. JPL personnel, vs. JPL-contract personnel) (Advisory to: Abraham/Battle).
- Plan for DSMS Level-0 testing needs to target completion before end of downtime (Advisory to: Sible)

### **Summary of Review Board Comments:**

Fred Battle: CSOC Safety Plan OK if JPL just supporting installation. MTC work covered by JPL-produced safety plan.

Wayne Sible: NAV Interface needs more coordination/planning/monitoring. Demos scheduled but not with project, so schedule is not firm. CDR modifications need to be clarified and scheduled.

Scott Morgan: Transmitter delivery is most critical situation. Need a contingency plan in case things get worse, before 10/18. Add training to integrated downtime schedule. Clarify Level-0 testing; needs to be done before end of downtime.

Bob McMahon: High likelihood of 20kw modkits being late. Need contingency plan for that. Need to make sure System Safety certifications are being processed for these deliveries.

Kim Massey: Training resources a real concern. Documentation lagging (as usual). CDR changes needed to be planned. Need better demo validations and traceability.

Joe Statman: No problem for CCG and Encoder work proceeding. Delta-DTRR needs to address 20kW transmitter and NSP testing. Need a GO-NOGO by 10/15.

Joe Wackley: Transmitter, defer decision as late as possible. Still recommended delta review on 7<sup>th</sup>. CCG modkits should be provided earlier. Need better PIT/NAV coordination. Training plans need to be improved. What happened to standalone xmtr controller?? Does OT require new blanket SODAs?

Al Willems: Re-iterate previous comments. A lot of risk, but little in way of mitigation plans. Coordination among tasks should have started earlier. Will check on CDR issues.

Dave Recce: Transmitter and NSP of most concern. TDDS connection to successful downtime needs to be highlighted, show at delta-DTRR. Training schedule needs work. Generally appears that more engineering coordination between tasks would have helped.

Ken Kimball: NAV interface to NSP and transmitter schedule of major concern. Still potential for major technical problems in ranging area.