

NCSX IPT Meeting Minutes

The minutes from the NCSX IPT meeting of Tuesday, December 18, 2007 at 1:30pm are as follows:

Attendees: DOE-PSO: J. Makiel

DOE HQ: B. Sullivan, K. Chao, S. Barish

ORNL: J. Lyon

PPPL: H. Neilson, J. Malsbury, J.L. Anderson,
D. Rej, R. Strykowski, J. Levine

1. DOE News (Barry)

- a) An Omnibus bill will likely go to the President for signature. The bill zeroes-out new ITER funds for FY08. The funding guidance letter from OFES for the NCSX Re-Baseline effort will be delayed until OFES works ITER and other financial issues within the Fusion Program.
- b) The Quarterly Briefing by SC-1 to the Deputy Secretary on all SC projects has been postponed. A new date has not been specified. The usual NCSX Quarterly Briefing by PSO to OFES on FY07 4th quarter activities has been cancelled.
- c) The next SC Watch List review continues unplanned. It's been a while since we had one. Further, we never had a Watch List briefing for the new SC-2 (Dr. P. Dehmer). [*Update: The next Watch List Briefing will occur in February*]

2. Safety Management (Jerry)

- a) There were no NCSX related safety incidents.
- b) An Activity Certification Committee (ACC) for Station #2 activities convened earlier today (Dec 18th). Overall, the general finding was satisfactory but the procedures were still in draft form. The ACC will re-convene when the final procedures have been issued. [*Update: next ACC scheduled for January 15th*].

3. Rebaseline Status (Jeff/Barry/Hutch/Jim A)

- a) The NCSX Project Team awaits funding guidance by the Office of Science for the preparation of the new baseline. In the interim, the Project is updating/improving individual job estimates in preparation of a 'best and final' baseline.

- b) The schedule of events (EIR, ESAAB, etc) to support the baseline change process will need to be updated. It was agreed that the Project Team will establish a preparation schedule of the time required starting from the point when SC makes their determination and annual funding guidance is provided, to prepare documentation in support of the External Independent Review (EIR) sponsored by OECM. At this time, it is likely that the re-baseline package will reach the Deputy Secretary's office for approval in the 3rd quarter of this fiscal year. [*Update: The Project has put forth a tentative re-baseline schedule.*]

4. Project Reviews (Jeff/Hutch/Jim L)

At this time it is unclear what reviews by Princeton (internal) and the by SC are planned for the re-baseline. SC generally has reviews every 6 months and the last SC review was in August 2007. Barry and Kin will discuss further off-line. [*Update: An SC Project Review will be requested by OFES. The status of a Princeton University internal review is unknown.*]

5. Project technical progress (Jim/Hutch)

The following provides a brief status on the major components:

MC Winding

Modular coil winding operations are proceeding well. All remaining casting are in production. MC winding is no longer a critical path activity.

Field Period Assembly

Station #2 (mating modular coils together)

- a) Station #2 activities continue to be behind schedule. The start of half-period production has been delayed by delays in MC interface design and process development. This is a critical path activity.
- b) The FDR on the shim design was successfully completed with only 3 minor chits. External technical reviewers were also present.
- c) Drawings for Station #2 are in the sign-off process. Procedures are being drafted.
- d) Delivery of the shim material for the first modular coil half period has a level 2 milestone assigned for December 2007, however, the shims will be delivered in early to mid January.

Station #3 (assembly of coil half period '3-packs' over the vacuum vessel)

- a) The tooling fixture for Station #3 has been delivered. The lift fixture is still in fabrication.
- b) Plans and procedures continue to be developed.

TF Coils

- a) Six TF coils have been delivered. The seventh, eighth and ninth TF coils are in production.
- b) In-house tolerance checking of TF coil fabrication may be done on a sampling basis.
- c) Overall, TF fabrication is going very well. Wedge casting deliveries, provided via subcontract to Everson Tesla Inc (ETI), appear to support fabrication schedules but are close to ETI's internal critical path. The Project is addressing this concern with ETI. Frequent visits by Project team personnel continue.

PF Coils

- a) A preliminary design review (PDR) for the PF coil design was completed. The final design review (FDR) will occur sometime in February 2008. The target date for procurement award is April 2008.

Trim Coils

- a) More analysis from physics and engineering personnel must be performed to determine the amount and type (kilo-amp turns) of the trim coils. A peer review is scheduled in January 2008.
- b) A full compliment of trim coils will be added to the Project's scope. Initial analysis indicates that 36 coils may be required which will behave like 24 coils, or circuits, (some coils are split into two small coils to accommodate port interference). However, additional coils at the mid-plan region may also be added.
- c) Installation of the trim coils will become part of Station #5 activities, which puts this new work on the critical path. Procurement must occur later this year to support Station #5 activities.

Design

- a) Coil structure design work continues. The material specification for the coils structures will revert back to stainless steel alloy versus aluminum alloy based on experience from MIT. The preliminary design review has been delayed in order to optimize interfaces with the trim coils. The coil structures work package is well off the critical path.
- b) Procurement of the machine support structure is scheduled for later this year. Detailed engineering design has begun.

6. Procurement

- a) No specific NCSX issues to report.
- b) The Procurement Division continues to seek a new Buyer to replace a person that left a month ago.

7. Review of critical issues (Jim/Hutch)

- a) Existing risk: Risk involved Station #2 (weld distortion, permeability changes, damage to modular coils, etc) are at the forefront as Station #2 activities commence.
- b) Retired risk: “Intermittent instability with metrology equipment”. There were several problems contributing to the metrology system malfunction which ranged from software to hardware issues. In general, these issues have been ironed-out. Also, to improve metrology performance and reliability, the Project is preparing to purchase a photogrammetry system.
- c) Retired risk: A path forward for “obtaining shim material” has been found.
- d) Retired risk: “Provide cross training to ensure backup of assembly construction managers” has been satisfied (M. Viola and E. Perry).
- e) Most recently added risk: “A full array of trim coils” will be added to the Project’s scope, and the work will become part of the critical path in the near future. The design effort must begin right away to support Station #5 activities.

8. Planning for the next 6 months (Jim A/Hutch/Ron)

The following activities will continue:

- Continue to prepare the Project’s re-baseline package upon receiving budgetary guidance from OFES;
- Complete modular coil winding;
- Commence Station #2 activities;
- Continue off-site fabrication of TF coils;
- Design and preparation for Field Period Assembly Stage #3, coil structure design, base structure design, PF and Trim coil design;
- The new NCSX Project Manager (Don Rej) will be onboard in February.
- Prepare for upcoming reviews (SC, PrUn, and/or OECM EIR).

Upcoming Level II milestones are as follows:

A new schedule of level I and II milestones are proposed for the Project as part of the re-baseline package. The proposed upcoming level II milestones are:

Nov 2007: MC Interface FDR (excluding C-C) [Status: completed]
Dec 2007: Deliver TF Coils for FPA #1 Assembly (Qty=4) [Status: completed]
Dec 2007: Shims for 1st MC Half Period Assembly (Station #2) Available [Status: pending].
Mar 2008: PF Coil PDR [Status: completed in December]

9. Project performance through end of November (Ron)

Since the Project's authorized baseline is no longer credible, the following statistics are based on the proposed baseline retroactive to May 1st (approximately 7 months).

BCWS= \$8,925K

BCWP= \$8,089K

ACWP= \$7,235K

CPI= 1.12 (+\$854K)

SPI= 0.91 (-\$836K)

Costs (end of Nov) = \$74,413K.

Contingency= \$14,380K (or 31% base on work remaining)

The negative schedule variance is attributed to delays with start up of FPA Station #2 as discussed above. The Project is approximately 2½ months behind.

Note from previous IPT meetings: The project continues to be graded "Red" because the Project's baseline is no longer deemed credible. It was determined that the Project should continue to formally track in PARS against the existing baseline, as per ECP53. In the interim, the Project will informally track against the proposed baseline.

10. ECP status (Jim/Hutch)

The following are current and anticipated Engineering Change Proposals (ECPs) that require DOE approval:

- a) There are currently no ECPs pending DOE approval. An ECP will be developed to support the project's re-baseline.

11. Planned IPT meetings (and other events) are as follows:

Jan 17 Quarterly Report Briefing for 1st quarter of FY08 in GTN
Jan 23..... Next IPT at 11:00am
TBD SC Watch List Briefing (likely in Feb 2008)
TBD SC Project Review
TBD EIR by OECM
TBD ESAAB