

NCSX IPT Meeting Minutes

The minutes from the NCSX IPT meeting of Tuesday, March 7, 2006 at 11:30AM are as follows:

Attendees: DOE-PSO: G. Pitonak, J. Makiel, L. Dietrich

DOE HQ: B. Sullivan, K. Chao

ORNL: J. Lyon

PPPL: W. Reiersen, R. Templon, H. Neilson, R. Strykowski
J. Levine, J. Malsbury, R. Hawryluk

1. DOE News (Barry/Kin)

- a) The NCSX Project Team will provide input and support during the upcoming SC budget planning meeting;
- b) OMB Exhibit 300 will be reviewed and updated to support the budget process by April 7th.

2. Safety Management (Jerry)

- a) Safety record is excellent. No recordable TRC incidents or DART cases in the last 4 months. This applies to both lab-wide activities and NCSX activities;
- b) ISM re-verification was planned for March 6-10. However, the ISM Team postponed their visit due to illness. It is anticipated that there will be a high level of focus on the NCSX project. The revised date must be rescheduled such that it does not coincide with the next Lehman Review planned for May 9-10. It was recommended that the ISM re-verification visit be reschedule prior to April 10th;
- c) Although not specific to the NCSX project, Hazardous Awareness Training will have a class this Thursday morning. Don Erbschloe (DOE-SC-3) will attend the training at PPPL and then tour the NCSX Winding Facility and Coil Test Facility.

3. Lehman Review (Kin/Barry/Greg/Hutch)

- a) A Quarterly Review/Interim Assessment occurred on February 22nd. Kin prepared the mini-review report that outlines two recommendations from the reviewers (Jeff Hoy and Bruce Strauss) as follows...
 - 1st recommendation was to contact LBNL on lessons learned regarding procurements from China. The NCSX Team followed up on the recommendation and gained valuable insight from LBNL's coil procurement experiences on the Berkley/SLAC collaboration that purchased approximately 500 coils from China in the mid/late 1990's.
 - 2nd recommendation was to provide a critical assessment of project status at the May Lehman review.

- b) In preparation for the next Lehman Review on May 9-10, the following tasks are underway:
- A draft charge letter for the May Lehman Review has been prepared. Barry and Kin are currently reviewing and finalizing the charge letter;
 - NCSX Project Team will establish updated 'estimates to complete' for remaining work on the NCSX project;
 - The supporting documentation for the review will be posted on the NCSX website by the end of April;
 - The NCSX Project Team will perform 'dry runs' of the presentation material and then post the finalized presentation material by May 3rd;
 - The NCSX Project Team assumes that $\frac{3}{4}$ to one full day to present materials by the NCSX Team, followed by an executive session of the review team later in the day. The following day (May 10th), further executive session, with factual accuracy support by the NCSX Team, and then conclude the review with a close-out session in the afternoon;
 - Kin will establish the Review Team and will most likely have the same folks that were at the last review in November. It was recommended to have the review team consist of approximately 4 reviewers.
- c) The NCSX project is assessed as "yellow" by OEMC due to vendor delays in delivery of components on the critical path. The NCSX Team needs to develop performance criteria to demonstrate improvement at the next Lehman Review in May. The primary focus should be on the modular coil winding form deliveries. Hutch will propose the criteria within the next 2 weeks.

4. Project technical progress (Hutch/Wayne)

The following provide a brief status on the major components:

MC Winding

- a) The C-1 MC: The vacuum bag mold was completed and the coil is about to be epoxy impregnated in the autoclave within the next week. Two winding crews continue to work on C-1. The March 2006 coil completion date looks good.
- b) The C-2 MC: Winding operations continue. The first side of the coil was wound with copper conductor. Winding work now continues on the second side. It is still too early to quantify the schedule improvement of winding activities of C-2 relative to C-1. But lessons learned from the first coil (C-1) have been adapted to C-2.
- c) The C-3 MC: The coil was received at PPPL last week. There was some anticipated rework required, but the coil winding form is now in the NCSX Coil Winding Facility at Station #1 where the form is being prepared for winding (stud welding, cleanup and winding clamp attachment).

MCWFs

The contract with EIO for the modular coil winding forms (MCWFs) is being modified to support an extended delivery schedule of the MCWFs. The revised schedule will support the NCSX Project's schedule regarding the timing and sequence of the delivery of the MCWFs.

The following is the status of MCWFs in vendor production:

- a) C-4 is in the 5-axis machining phase. The March 31st delivery looks good;
- b) C-5 is in the 3-axis machining phase and is still on target for the May 4th delivery;
- c) A-1 and A-2 are in the rough machining phase;
- d) C-6, A-3, A-4, A-5, A-6, B-1 and B-2 were poured and await machining operations.

In summary:

5 in foundry phase
6 in machining phase
3 delivered
14 total

VVSA

The VVSA effort continues as follows:

- a) The 1st segment successfully completed vacuum and thermal testing. Ports are now being removed to accommodate field period assembly of modular and TF coils at PPPL later this year. Port interface machining, and port alignment is taking longer than anticipated. Therefore, the delivery of the 1st period has slipped from March 22nd to mid April. However, the 1st segment is not a schedule critical component;
- b) The 2nd segment completed the installation of all ports and the support bosses are now being welded. This segment will undergo testing later this month;
- c) The 3rd segment has completed the welding of the two subsections together. Machining the holes for the ports is the next step but this task has been delayed by the vendor (Major Tool and Machine-MTM) due to other MTM in-house conflicting work that utilizes the same machining resources. The 3rd segment is due mid-June, but this date appears to be at risk. Although the delivery of the 3rd segment is well off the project's critical path, there is a Joule milestone attached to this work which requires careful monitoring by the NCSX Project Team.

Other components and facilities

- a) The TF coils are in the procurement phase. Two bids are anticipated. One bid was received earlier this week. All bids are due by this Friday (March 10th). This effort is on-track;

- b) As reported during the last IPT meeting, both VV Prep fixtures are completed. Station #1 is being readied for the installation of diagnostic loops and heating/cooling tubes as follows:
- A final design review for the heating/cooling tubes will be held on March 16th followed by material procurement;
 - Heating tape, to control thermal flux along the ports, is also in procurement;
 - Plans and procedures are currently being developed for Station #1;
 - The Activity Certification Committee will review the Station in late March as similar to other NCSX operational facilities such as the Coil Winding Facility, Coil Test Facility and Autoclave;
 - A new laser tracking system and new software will be used for dimensional location of loops and tubes on the vacuum vessel. Training on equipment usage is currently being performed.

5. Procurement (Rod)

- a) Procurement of the TF coils has been initiated. The bid due date has been extended a few days to March 10th to accommodate one of the two bidders. The PPPL Procurement division is working with the NCSX Project team to assemble a bid proposal review team.
- b) EIO contractual modification is nearly complete. The package will be sent to DOE-PSO for final review and approval within the next week. In the interim, EIO/MTM is performing against the revised delivery schedule set forth in the contract modification.

6. Review of critical issues (Hutch/Wayne)

A new category I Critical Issue has been identified regarding the need for an improved connective interface between modular coils along the inboard flange faces. Currently, there are no bolts in this area due to limited accessibility. The engineering team is investigating whether the shear forces during machine operation will require additional mechanical fastening.

7. Planning for the next 6 months (Hutch)

As discussed earlier in the IPT meeting, the focus will continue to be on the receipt and winding of modular coils as a critical path activity. Concern was also expressed in the amount of design work still remaining in support of the procurement of coil components for the A-1 modular coil which is anticipated to be received in June/July timeframe. The schedule appears tight at this time.

Other planned activities are:

- Continue fabrication, and receipt, of vacuum vessel segments;
- Commence field period assembly;
- Procure TF coils and oversee vendor fabrication;
- Prepare for next Lehman Review in May;
- Increase technician resources to support increasing activity in the Coil Winding Facility, Autoclave, and eventually Field Period Assembly operations;
- Internally assemble teams consisting of technicians, engineers, diagnostic personnel, etc. to support Field Period Assembly work.

8. Project performance thru January (Ron)

During the IPT Meeting, the teleconference capability with HQ and ORNL expired and Kin, Barry and Jim had to terminate their participation. However, the meeting continued with the remaining IPT members in the DOE Conference Room. The following project performance items were discussed...

- January performance data: SPI=.97 and CPI=.98. The project has been categorized as “yellow”. February’s data is not yet available;
- There has been no drawdown on contingency since ECP39. Contingency is at 24.5% based on remaining work. When incorporating the existing cost variance (CV) against the contingency, the effective contingency is about 22.2% of the work remaining;
- A little over 5 months of schedule float continues along the project’s critical path;
- A management reserve of \$2.4M of undistributed budget exists. The NCSX Project Team is determining how the reserve will be distributed;
- Continue to work on offsetting cost variances;
- The NCSX Project may look to re-plan before next Lehman Review in May.

9. ECP status

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

- a) No further ECPs requiring DOE approval have been identified at this time.

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

March 28Next IPT Meeting
Early April?PPPL Site-Wide ISM Re-Certification
May 9-10, 2006Next Lehman Review at PPPL