NCSX IPT Meeting Minutes

The minutes from the NCSX IPT meeting of Tuesday, Nov 28, 2006 at 1:30pm are as follows:

Attendees: DOE-PSO: J. Makiel, L. Dietrich
DOE HQ: B. Sullivan, K. Chao
ORNL: J. Lyon
PPPL: R. Templon, J. Malsbury, R. Strykowsky, W. Reiersen, H. Nielson, R. Hawryluk

1. DOE News (Barry)

a) No further news about the Energy and Water Bill. The Continuing Resolution continues to be indefinite. Jeff recommended that the NCSX Project examine the impact should the Continuing Resolution be extended thru March;

b) OECM recently proposed to grade the NCSX Project as "red". Members of the IPT disagree with a red classification. Senior DOE-SC management will discuss further with OECM later next week.

2. Safety Management (Jerrry)

There are no notable safety related issues within the NCSX Project.

3. SC Project Review (Kin/Jeff)

a) The next SC Project Review is scheduled for December 19-20 at PPPL;

b) The charge letter was signed by the acting associate director of OFES, and a supplemental guidance letter was provided by DOE-PSO to the NCSX Project Team;

c) The Committee members have been revised since the last IPT and will now be:

Dan Lehman (DOE/SC) co-chair

Kin Chao (DOE/SC) co-chair

James Kerby (Fermilab)

Steve Webster (Fermi Site Office)

Joe Minervini (MIT)

Jeff Hoy (DOE/SC)

Bruce Strauss (DOE/SC)

Mike Anarella (BNL)

d) PPPL and ORNL are currently preparing for the review. No issues were noted.

4. Project technical progress (Wayne)

The following provides a brief status on the major components:

MC Winding

a) The C-1 MC: The C-1 is complete*;

b) The C-2 MC: The C-2 is complete*;

c) The C-3 MC: The C-3 is complete*;

d) The C-4 MC: The C-4 is complete*;

e) The C-5 MC: The C-5 is complete*;

f) The A-1 MC: The A-1 is complete*;

g) The A-2 MC: The A-2 being prepared for VPI;

h) The A-3 MC: The A-3 chill plate installation;

i) The B-1 MC: Received B-1 began winding operations;

j) The B-2 and A-4 MC: In queue;

k) Small components for all remaining coils have been received. Minor modification to the final clamps is underway.

* 'Complete' is defined as completing VPI and successfully warm tested. The installation of the final clamps still remains.

MCWFs

The following is the status of MCWFs in vendor production:

a) Eleven modular coil winding forms have been delivered to date. The next winding form will be B-3 which will provide the winding forms necessary for the 2nd field period;

b) Modular coil winding form production is going well at Major Tool and Machine and continues to support the Project's needs.

In summary:

0 in foundry phase
7 in machining phase
11 delivered
18 total

Field Period Assembly

The Field Period Assembly (Stage 1) effort continues as follows:

a) FP #1 continues with the installation of heating & cooling tubes, and the diagnostic loops on the vacuum vessel. All necessary materials are on-hand. The mounting studs and the cryostat flange collar have been installed;

b) FP #2 is having the cryostat flange collar installed;

c) FP #3 is having the cryostat flange collar installed.

TF Coils

a) The TF Coil contract with Everson Tesla Inc. (ETI) satisfactorily continues. Preparation work has been completed (clean room, winding mandrel, brazing trials, pull test, etc);

b) The first wedge casting was poured and subsequently rejected. A second pour was performed and appears satisfactory;

c) It continues to be anticipated that the first two TF coils delivery dates will slip as previously reported. The slip will be recovered upon delivery of the third TF coil. The TF coils are not a critical path item. Delivery will begin at the end of February. No cost issues by ETI have been noted;

d) Although the TF Procurement Tech. Rep. visits ETI often for technical oversight support, a larger delegation of NCSX Project Team members will visit ETI on Thursday (Nov 30th) to discussed overall contract status and schedule of the delivery. Technical and QA representatives will visit sub-tier suppliers Tesla, Inc. (UK) and Österby (Sweden) the week of Dec. 11.

Other activities

Although not discussed during the IPT Meeting, design activities continue with the following:

- coil assembly drawings;
- modular coil interface;
- field period assembly stations.

5. Procurement (Rod)

a) Procurement continues to support both major and minor material contracts including EIO/MTM and Everson Tesla Inc as discussed above;

b) Approximately $100K of procurement requisitions is being processed to support small components for the modular coils such as thermocouples, toggle pads and clamp bushings;

c) Procurement is in the process of closing the Major Tool and Machine contract for the fabrication of the VVSAs upon the successful receipt of all three VVSAs;

d) Procurement is working to reclaim some materials from the EIO for the modular coil winding form contract. In addition, the molds used to pour the castings will be placed in storage by EIO until receipt of all MCWFs by PPPL.

6. Review of critical issues (Wayne)

a) There are no Category I critical issues;

b) Category II critical issue: The project is investigating a process that will modify the finish on the mating flanges of the modular coils to improve shear strength. This work is in parallel to the shear plates currently being developed for the inboard mating surfaces;

c) Category II critical issue: Readiness for field period assembly. Continue to examine the work that needs to be done in preparation of this critical path activity.

7. Planning for the next 6 months (Jeff/Ron)

The technical focus will continue to be on the receipt of MCWFs, and the winding of modular coils as a critical path activity.

Other technical planned activities are:
- Continue with FPA Stage 1 production prototyping with focus on outfitting FP #1;
- Monitor and oversee TF coil vendor fabrication. First TF delivered at end of February;
- Continue with design support for coil assembly and field period assembly tasks.

The administrative/project management focus will be on the preparation for the next SC Project Review in December 2006. It is understood that the project may require baseline modification to bolster contingency level as to improve overall project confidence. The appropriate timing for any baseline change will be discussed at the review.

8. Project performance through Oct (Ron)

a) The project cost performance data thru the end of October as per ECP52: SPI=1.0 and CPI=.98. The incremental cost variance for the month of October was only $3K. The incremental cost variance for the last six months has decreased with an incremental CPI=.96. The Project's target monthly cost variance is to not exceed $150K;

b) With the processing of ECP 52 described in section 9 of these minutes, the contingency is now ~$6.6M. With the release of contingency to cover a portion of the cost variances for completed work, the cost variance is now ~$1.2M. Upon covering all of the cost variances to date, the 'effective' or 'free' contingency is around $5.4M or 19% of the remaining work;

c) There are no significant schedule issues. The TF delivery is slightly delayed but the TF coils have 7 months of schedule float against critical path needs. The modular coil winding forms are being delivered at a rate such that there is now 1 month of free float between the receipt of the winding form and the commencement of in-house winding activities;

d) The modular coil winding activities continue to have a lapsed time of 5 weeks each. The target is to fabricate a coil within 4½ weeks. The winding costs per coil appears to have stabilized (i.e., "learning curve") and costs may or may not reach the target cost level as challenged by the NCSX Project Management Team. Additional contingency may be required to complete this activity.

e) Current management reserve is around $2.27M. Carryover from FY06 was larger than anticipated which has increased the current reserve.

9. ECP status (Ron)

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

a) ECP52 has been approved which re-plans activities in FY07. The ECP has released $1.244M of contingency to support the recent $870K cost estimate growth for the modular coils, first field period assembly and other planned tasks. The ECP has also released $374K of contingency to offset the cost growth of accomplished work;

b) No other ECPs requiring DOE approval are planned at this time.

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

Nov 30th.....NCSX Monthly Watch List Report for Nov
Dec 19-20.....Next NCSX SC Project Review
Jan 9th .....Next NCSX IPT meeting at 11:30am