

NCSX IPT Meeting Minutes

The minutes from the NCSX IPT meeting of Tuesday, Feb 27, 2007 at 1:00pm are as follows:

Attendees: DOE-PSO: J. Makiel, G. Pitonak
DOE HQ: B. Sullivan, K. Chao, S. Barish
ORNL: J. Lyon
PPPL: R. Templon, F. Malinowski,
J. Levine, H. Nielson, R. Strykowski

1. DOE News (Barry/Sam/Greg/Hutch)

- a) The continuing resolution is expected to continue through March. The full FY07 funding for NCSX will be provided in the April financial plan. The project's financial needs through the remainder of the CR period can be met with no impact to the project schedule;
- b) The FY09 budget formulation process is underway with the preparation of the Field Work Proposals and the upcoming Budget Planning Meeting. PPPL's proposal for the NCSX Program in FY09 will be approximately \$20M and include the following NCSX related activities:
 - Complete the NCSX MIE Project as per the current baseline cost and schedule;
 - Achieve 1st plasma with a 6 week NCSX experimental run in late FY09;
 - Perform long lead equipment preparations for NCSX heating experiments for the FY11 research campaign.

NCSX budget plans will be updated as necessary based on the results of the current on-going 'estimate-to-complete' effort.

2. Safety Management (Jerry)

- a) There was an NCSX related OSHA recordable incident when a worker cut his hand on the hinge of a winding form fixture and required medical sutures. No lost time resulted and therefore was not a DART case. As a result, there will be procedural changes and the Job Hazard Analysis will require the use of protective gloves.

3. SC Project Review (Jeff)

- a) The NCSX Project updated the web-based SC Project Review Recommendation Log to incorporate the findings and recommendations from the last Project Review in December 2006;
- b) One SC Review Report finding/recommendation is to establish a technical peer review to determine if additional cold testing of completed modular coils is required. Jeff will coordinate the Peer Review with Wayne and the appropriate technical members of the SC Project Review team;
- c) One SC Review Report finding/recommendation is to establish a resource loaded 'estimate-to-complete'. This effort is underway and 'on-track'. The engineers and job managers are beginning to provide their input to Project Management and the PPPL Head of Engineering will begin internal reviews of the estimates in the March/April timeframe;
- d) As an action item from the last IPT meeting, Greg drafted a schedule of events necessary to support a project re-baseline by the end of this fiscal year. Generally, all IPT members agree with

the proposed schedule albeit an aggressive schedule. Kin & Barry to initiate discussions with OEMC by mid-March.

4. Project technical progress (Hutch)

The following provides a brief status on the major components:

MC Winding

- a) B-1 is in the Autoclave for vacuum pressure impregnation (VPI);
- b) B-2 is being wound. Bag mold is about 1/3 done;
- c) A-4 completed cladding and is installed in the winding station;
- d) B-3 is in the casting prep phase;
- e) Dimensional issues that were discussed at the last IPT Meeting with the B-type castings were resolved. The cause for the discrepancy between PPPL and Major Tool's metrology is believed to be a combination of interpreting the software's user coordinate system, and flexure of the winding form itself.

MCWFs

Fourteen modular coil winding forms (MCWFs) have been delivered to date. A-5 is in final inspection with delivery anticipated very soon. Remaining winding forms are A-6, B-6 and C-6 which are in machining operation. In summary, the MCWF contract is in the 'home stretch'.

In summary:

- 0 in foundry phase
- 4 in machining phase
- 14 delivered
- 18 total

Field Period Assembly

The Field Period (FP) Assembly effort continues as follows:

- a) FP #1 completed installation of the magnetic loops. FP #1 has been temporarily removed from the fixture and set aside;
- b) FP#2 is underway with installation of magnetic loops;
- c) FP #3 has been mounted in the fixture that FP #1 previously occupied and is undergoing metrology.

TF Coils

- a) The TF Coil contract with Everson Tesla Inc (ETI) continues. The first TF coil has been wound with copper conductor;

- b) A dimensional control issue exists involving 'spring back' along the straight leg of the coil upon removal from the winding mandrel. ETI has developed an additional fixture during the molding process to help maintain the coil's shape;
- c) Electrical tests of the conductor pack are underway by ETI;
- d) It continues to be anticipated that the TF coil's delivery date will slip to mid-April. PPPL's Procurement Division has issued a letter to ETI noting the delivery schedule delay and requests a plan to improve or restore the schedule. The TF coils are not a critical path item. No cost issues by ETI have been noted.

Other activities

- a) Design activities continue with the modular coil interface design. A successful PDR on bolt design occurred;

5. Procurement (Rod)

- a) Procurement continues to support both major and minor material contracts including EIO/MTM and Everson Tesla Inc as discussed above. Approximately \$26K of small part procurements is underway;
- b) DCAA audited the MTM's costs as per the Energy Industries of Ohio (EIO) incentivized contract for the modular coil winding forms. DCAA determined that \$91K of incentive payments could not be substantiated. Further investigation continues;
- c) The PPPL Procurement Division has issued a letter to ETI regarding schedule concerns with the TF coils as discussed in Section 4 of these minutes.

6. Review of critical issues (Hutch)

- a) There are no Category I critical issues;
- b) Open Category II critical issues are:
 - Modular coil winding form costs - contract proceeding as planned;
 - Modular coil winding cost - addressed by ECP53 release of contingency;
 - Parts for modular coil assembly - evaluation of gages complete and moving to procurement of gages and other small parts;
 - Clamp design - design complete and in procurement;
 - Modular coil joint design - test and assembly trials underway;
 - Readiness for Field Period Assembly - a PDR was performed and continues as 'open'.

7. Planning for the next 6 months (Ron)

The planned activities for the next six months as per ECP53 are:

- Modular Coil winding form fabrication and in-house winding activity;
- Field Period Assembly including the supporting developmental trials for Stage #2 regarding interface design (bolts, shims, bushings, etc);

- Prepare a bottoms-up estimate for remaining work;
- First 3 TF coils received by April, with 14 total coils received by end of fiscal year;
- Preliminary design review (PDR) for poloidal field (PF) coils by September;
- Final design review (FDR) for coil structures by June.

Upcoming Level II milestones are as follows:

- Last MCWF delivered by Sep 07: On-track (anticipated delivery June 07)

8. Project performance through Jan (Ron)

The following project cost performance data thru the end of January as per ECP53:

SPI=1.0
CPI=.97

The CPI is due to increased cost for in-house winding activities and winding materials.

ECP53 drew down \$594K of contingency to support planned work in FY07. Contingency is now \$6,033K. The cumulative CV is \$1,960K. Therefore, 'free' contingency is \$4,073K which is about 16% of remaining work.

Management Reserve is now \$654K. There are opportunities to increase the management reserve by \$964K as follows:

- Sale of tooling material from MTM =~\$222K
 - Retroactive MHX adjustment =~\$232K
 - FY07 overhead rate reduction =~\$110K
 - Electrical work reprogrammed to GPP = ...~\$400K
- \$964K

9. ECP status (Hutch)

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

- ECP53 was approved and increased budget to support coil winding and field period activities in FY07. ECP also authorized the developmental trials in support of Field Period Assembly.
- ECPXX is anticipated to incorporate the 'offset' discussed in Section 8 as to increase management reserve.

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

TBD.....Peer Review for Cold Testing of Modular Coils
 March 20th.....Next NCSX IPT meeting at 11:30am
 March 13-14th.....Budget Planning Meeting
 July 10-12.....Next NCSX SC Project Review/OECM Review