

NCSX IPT Meeting Minutes

The minutes from the NCSX IPT meeting of Tuesday, April 10, 2007 at 11:30pm are as follows:

Attendees: DOE-PSO: J. Makiel, G. Pitonak, A. Indelicato
DOE HQ: B. Sullivan, S. Barish
ORNL: J. Lyon
PPPL: R. Templon, H. Neilson, R. Strykowski, J. Levine

1. DOE News (Barry/Sam)

- a) Dr. R. Fonck (OFES) presented the FY09 budget proposal to Dr. Orbach. Although specific details on the budget are not available at this time, the presentation went well;
- b) Laboratories have received 95% of their FY07 funding under the continuing resolution. The remaining 5% is anticipated to be made available later in April. ORNL reported that funding for ORNL's FY07 NCSX work activities is OK;
- c) As previously discussed in the last IPT meeting, a Budget Planning Meeting was held in Germantown that presented a brief on the NCSX MIE project, the NCSX research program, and the NCSX upgrade planning program. The presentation highlighted the possibility of a ~\$12M increase to the NCSX MIE project, that was discussed at the December, 2006 Lehman review;

Subsequently, a letter was sent to PPPL, from J. Faul (SC-PSO) to R. Goldston (PPPL), requesting an analysis of the impact on the NCSX research program and the NCSX upgrade planning program of increased MIE project funding needs in FY09 and beyond. PPPL is working on the response which is due April 18th;

- d) It is anticipated that Dr. Fonck will be visiting PPPL/PSO later this month. His visit will provide him with an orientation of general Laboratory operations/functions including research, facilities and support activities. There may also be another meeting in Germantown that focuses specifically on the NCSX Project/Program. The second meeting will most likely occur sometime after receipt of the April 18th response to the J. Faul letter discussed above;
- e) An HQ requirement to provide project cost data by the 10th day of the month after the close of a quarter (2nd quarter = April 10th) has been satisfied. The NCSX Project performance data (CPI, SPI and Cost Performance Report) is available on the NCSX external web page.

2. Safety Management (Jerry)

- a) There was no new NCSX related safety incidents;
- b) A lab-wide refresher on "Job Hazard Analysis (JHA)" is underway;
- c) Lab-wide training on "Human Performance" was held the week of March 19th. Over 100 laboratory and site office personnel attended;
- d) PSO (Greg) requested that the Site Office be brought up to speed on the upcoming lifts in support of field period assembly at station #2 (coil to coil assembly). Specifically, PSO requests

participation in all analysis and reviews in the lifting and rigging of the modular coils and the resulting coil pack assemblies. Additional technical support may also be requested from the Chicago Field Office (Support Center).

3. SC Project Review (Jeff/Barry/Hutch/Greg)

- a) Another revised date (revision 2) has been proposed for the upcoming SC Project Review. The proposed dates are now July 31 - Aug 1st. The NCSX Project Team and PSO have indicated that the new dates are acceptable;
- b) The anticipated review team members are:
 - Bruce Strauss (DOE-SC)
 - Jeff Hoy (DOE-SC)
 - Dave Anderson (University of Wisconsin)
 - Steve Webster (DOE-FSO)
 - Joe Minervini (MIT)
 - Kin Chao, co-chair (DOE-SC)
 - Dan Lehman, co-chair (DOE-SC)
- c) The SC Review will probably be about 2 days. At this time, it is uncertain if Bruce Strauss and Jeff Hoy will be able to attend the entire SC Review;
- d) The Office of Engineering and Construction Management (OECM) will also be on-site performing their review to support the re-baseline concurrent with the SC Review plus 1 additional day more. It is anticipated that OECM will use contracted consultants led by Suneel Kapur (DOE-OECM) and consist of 'one-on-one' meetings with NCSX WBS managers;
- e) Preparation of a 'bottoms-up' cost-to-complete continues and is on-track for the review package to be available on the NCSX website by June 15th. Engineers and job managers continue to provide their input to Project Management and PPPL's Head of Engineering for internal review and validation of the estimates. To date, the job managers have submitted 75% of the required estimates for the work remaining within the NCSX Project;
- f) It was agreed by the IPT members to begin drafting the charge letter for the July SC Review. It was recommended that the charge should focus on the remaining work regarding 'estimates-to-complete', risk analysis and contingency. A charge letter will be drafted by Barry for review and discussion at the next IPT Meeting scheduled for May 1st;
- g) Greg emailed a list of documents/topics to Suneel Kapur in support of OECM's baseline review. Suneel indicated that the items are satisfactory.

4. Project technical progress (Hutch)

The following provides a brief status on the major components:

MCWFs

Sixteen modular coil winding forms (MCWFs) have been delivered to date. Remaining winding forms are B-6 and C-6 which are in the machining operation with anticipated delivery in early May and June, respectively.

In summary:

0 in foundry phase
2 in machining phase
16 delivered
18 total

MC Winding

Ten modular coils have been potted (vacuum pressure impregnated-VPI) to date. The eleventh coil will be potted later this month. 3 coils are currently in production.

Field Period Assembly

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

Station #1 (VV prep - diagnostics, h/c tubes)

- a) FP #1 has almost completed heating and cooling tube installation;
- b) FP#2 completed installation of magnetic loops;
- c) FP #3 has been dismantled from the fixture so that work on FP #1 can continue.

Station #2 (mating modular coils together)

- a) Preparations for Station #2 are underway. A June start up date is at risk because two prerequisite tasks are behind schedule and must be completed:
 - 1 Complete work on the modular coils (drilling additional bolt holes, grinding in way of bolt locations, installation of all clamps and thermal insulation);
 2. Engineering and developmental tasks for the modular coil interface must be completed (shear pin plate or similar system) and procure parts (shims, bladder, bolts, etc);The project is taking measures to keep these tasks on schedule.
- b) The NCSX Project assigned a “punch list” coordinator (Steve Langish) to help ensure that the prerequisite tasks for Station #2 are performed in a timely manner;
- c) Schedule delays regarding the commencement of Station #2 is on the Critical Issues List. This is a critical path activity.

TF Coils

- a) The TF Coil contract with Everson Tesla Inc (ETI) continues. The first TF coil has been wound with copper conductor, was electrically tested, ground wrap installed and will now be place in the potting mold. Progress is going smoothly but slowly;
- b) A dimensional control issue exists involving ‘spring back’ along the straight leg of the coil upon removal from the winding mandrel. ETI determined that annealing of the solid copper conductor will not be performed as previously anticipated. Instead, they will rely on fixtures within the potting mold to hold the coil’s shape;

- c) The first wedge casting is now at Everson in Pennsylvania;
- d) It is anticipated that the TF coil's delivery date will slip to May although ETI's revised schedule denoted an April delivery. The original contract schedule called for the first TF delivery back in February. Although the TF coils are 6 months off the critical path, there is a concern that subsequent TF coils will not be delivered within the 2 week intervals as planned. No cost issues by ETI have been noted. PSO plans to visit ETI during an upcoming visit by project team members.

5. Procurement (Rod)

- a) Procurement continues to support both major and minor material contracts including EIO/MTM and Everson Tesla Inc as discussed above. \$250K of new part procurement requests has been received to support field period assembly as follows:
 - Lifting actuators for the crane;
 - Flange and stud kit for coil-to-coil mating;
 - Stud tensioning hardware (Superbolt®);
- b) DCAA audited 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. MTM continues to challenge the finding. This cost has not been accrued by the Project.

6. Review of critical issues (Hutch)

- a) There are no Category I critical issues;
- b) The Critical Issues list has been updated. The only notable critical issue is the readiness for Field Period Assembly for Stage #2 June start as previously discussed in Section #5 of these minutes.

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 completed by June and the in-house winding activity will complete the potting of 15 of the 18 coils;
- Field Period Assembly Stage #1, and Stage #2 including developmental trials for 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);

- Begin FPA, July 2007.

8. Project performance through March (Ron)

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

SPI=.99
CPI=.96

The SPI is due to:

- a) Delays in developing the modular coil interface design and parts procurements;
- b) TF coil slip discussed in Section #5 of these minutes.

It is anticipated that the deletion of FPA Station #4 (making of 3-packs of TF coils) will help offset critical path schedule delay.

The CPI is due to:

- a) Cost due to tech shop labor and supplies for coil winding operations;
- b) Ongoing general cost increase for winding operations.

FPA work at Station #1 is showing a positive cost variance which has helped offset the above cost variance.

Management Reserve:

Previously discussed in the last IPT Meeting minutes of March 20th, opportunities to increase the management reserve by \$964K continue. However, the scrap material value of tooling from MTM will be approximately \$85K less than previously anticipated.

A spending plan for FY07 management reserve was presented. The plan will distribute most of the reserve into ongoing and planned FY07 workscope. A concern was expressed by Jeff as to whether the available funds are sufficient to support the planned workscope for the remainder of this fiscal year. However, delays in FPA Station #2, and delays in delivery of TF coils from ETI will help alleviate the tight budget issue.

9. ECP status (Ron)

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

- a) 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.
- b) No other ECPs requiring DOE approval are planned at this time. An ECP has been proposed to reflect partial results of the ETC exercise. That is, the ECP would help validate the accuracy of the revised estimate for the ongoing until the July Review in winding operations (i.e., "punch list"), field period assembly station #2 and interface hardware costs.

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

TBD.....Peer Review for Cold Testing of Modular Coils
April 25thMonthly SC Watch List Brief
May 1st.....Next NCSX IPT meeting at 11:30am
TBD.....Quarterly Briefing (sometime in April?)
July 31 - Aug 1stNext NCSX SC Project Review/OECM Review