

# NCSX IPT Meeting Minutes

The minutes from the NCSX IPT meeting of Tuesday, August 2, 2005 at 11:00AM are as follows:

**Attendees:** DOE-PSO: J. Makiel, G. Pitonak

DOE HQ: B. Sullivan, K. Chao

ORNL: J. Lyon

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

## 1. DOE News (Barry)

The ESAAB was held on July 27<sup>th</sup> at 3:00pm. The Deputy Secretary accepted the new baseline presentation and informally approved it. Barry will follow up with Brian Kong (OECM) to obtain the minutes of the ESAAB meeting and an approval memo.

Although the Deputy Secretary has approved the new baseline, a formal acknowledgement is necessary before for the NCSX Project performance can be measured against it. An approved revised Project Execution Plan (PEP) and Engineering Change Proposal (ECP) must be authorized. However, OECM has expressed a desire to delay documenting approval of the new baseline until the FY07 budgets are established. This issue may require resolution at the HQ level.

The NCSX Project budget for FY07 may receive an incremental increase above the current 'flat line' scenario as assumed in the proposed new project baseline. The NCSX Project Team will analyze an optimal funding scenario for FY07 and beyond.

## 2. Safety Management (Jerry)

a) There have been no recordable injuries in the past 8 months;

b) The Activity Certification Committee (ACC) has completed a review of the Coil Winding Facility prep station and second winding station. There are still some open issues from the ACC review, but these issues will be resolved prior to the commencement of operation of these stations.

### **3. Next Lehman Review (Barry/Greg/Hutch)**

The next Lehman review is scheduled for November 2-3. Barry will prepare a charge letter for the review and send a draft to Greg and Hutch. Likely assumptions for the review are:

- Approximately 1-1/2 days;
- Provide details on FY06 plans;
- Cost and Schedule, including the management of risk;
- Closure of items from last Lehman Review (TF coil robustness of design, testing of the TRC, and project resource loading);
- Provide a background of events leading to the delay of major components, and a 'get well plan' for recovery.

### **4. Project technical progress (Hutch)**

- a) The C-1 casting continues 5-axis machining at Major Tool and Machine. Some more machining challenges were encountered since the last IPT meeting. The C-1 casting is now estimated by the supplier to ship on August 23<sup>rd</sup>. Final tolerance testing will occur between August 12 - 22 with support from PPPL Quality Assurance and DCMA;
- b) The C-2 casting is in the machining phase also and about 1/3 complete. The C-2 casting is progressing much better from lessons learned on the C-1 casting. The duration of machining is estimated to be about 13 weeks;
- c) The A-1 casting has a section of wall that was found to be thinner than specified in the design drawings/specifications. PPPL has examined the situation and determined that the casting can be accepted as is. A non-conformance report (NCR) will be generated by the lead vendor (EIO), and PPPL will make a formal disposition. Supporting documentation will address stresses, deflections, and reproducibility of the remaining Type "A" castings (important for stellarator symmetry). This documentation will be reviewed by selected members of the IPT on August 8, 2005. This issue will also be added to the Critical Issues list. The EIO team continues to investigate why this happened. Specifically, MetalTek (subcontractor to EIO that performed the pour) is planning to perform validation measurements on the pattern. In the meantime, routine weld repairs on the A-1 casting continue in preparation for the machining phase;
- d) The C-3 and C-4 casting have been poured at MetalTek and undergoing dimensional tolerance checking prior to shipment to Major Tool and Machine for the machining phase. MetalTek is now setting up to pour C-5. At this time, it is uncertain whether A-1 or C-3 will be the next casting to begin machining;

- e) The “B” pattern continues to be in the development phase. Delivery of the pattern to the foundry is scheduled for September 15.
- f) The VVSA panel forming continues. All the panels for the first half period have been formed and welded together to form a 60 degree section. Upon removal of the half period from the welding fixture, a ¼” deformation occurred. However, the deformation is being remedied and is not considered a major problem. Overall, the VVSA is still behind schedule, though they forecast final deliveries being on schedule. Major Tool and Machine has augmented their staffing and a second panel forming press will be placed into operation. Joining of the first two 60 degree sections is planned for late August. Members of the NCSX Project Team and DOE/PSO are planning another visit to Major Tool and Machine next week.
- g) A new cryostat is being fabricated for cold testing of the Twisted Racetrack Coil (TRC) in the Coil Test Facility. Moisture/freezing problems experienced during the testing of the Planer Racetrack Coil are being remedied for the TRC test which is planned next week when NSTX commences operation.
- h) The Coil Winding Facility is almost ready for operation and will be ready upon the arrival of the first modular coil casting:
  - training is complete;
  - lacing trials to hold the winding pack looks good;
  - procedures are being finalized;
  - ACC review was performed and findings are being addressed;
  - upper and lower lead blocks have been ordered from JP Pattern. Delivery is sooner than anticipated;
  - assembly drawings will be done August 12<sup>th</sup>;
  - clamp drawings will be done August 19<sup>th</sup>;
  - diagnostic loop materials will be ready to go;
- i) The wedge plate for the TF coil had a successful Final Design Review. The wedge plate package is being prepared for procurement;
- j) VVSA cooling tubes are in procurement. Flexible tubing will be a fall-back material if the prefabricated bent tubing is not satisfactory;

## **5. Procurement (Rod)**

- a) There is a significant effort by the Procurement Team to procure all materials in support of the C-1 coil winding. There are many requisitions to process;

- b) Procurement of the lead block assembly (discussed in paragraph 4h above) has been let to JP Pattern. Partial delivery is anticipated to be earlier than the August 19<sup>th</sup> scheduled date.
- c) The VVSA cooling tube procurement is being prepared for an RFP. Delivery is requested by the end of this fiscal year.

## **6. Review of critical issues (Hutch/Wayne)**

- a) As mentioned in previous IPT meetings, current center position control continues to be a critical issue (category II). The use of fiberglass strapping (i.e., “lacing”) to stabilize the conductor should provide the necessary security during the re-clamping process;
- b) The field weld design that connects the completed field period assemblies (VVSA and coils) is resolved. This risk has been retired;
- c) The NCSX Team is continues to investigate an alternate technique to achieve the complex motion required during the field period assembly without the use of a complex computerized assembly fixture as originally planned. A test trial was performed on a concrete shielding block to simulate the modular coils flight path. The technique looks promising. Additional cost/risk assessment is required before a final decision is made.

## **7. Planning for the next 6 months (Hutch/Ron)**

- ➔ Prepare ECPs (see paragraph 9);
- ➔ Close-out designs for vacuum vessel, C-type modular coil, and TF coil;
- ➔ Continue vendor fabrication activities & begin coil winding
- ➔ Focus on design work related mostly to the support structures;
- ➔ Re-plan next years scope and resources adjusting for delays experienced this fiscal year regarding the modular coil winding forms.

## **8. Project performance thru July (Ron/Greg)**

- a) The SPI and CPI are not yet available for July. PARS data will be available next week. However, the July report will report against the old baseline unless the new baseline is formally approved. This will skew the data; ??
- b) As reported in the last IPT Meeting, an ECP is forthcoming that will request \$780K (versus \$920K as previously anticipated) of contingency to the project that will

support items previously discussed in the last report ( see paragraph 8c of July 13<sup>th</sup> report). These risks will also be retired and the contingency will be 25.5% based on the remaining work;

d) An estimate carryover at end of the fiscal year of \$2.0M continues to be anticipated.

## **9. ECP status (Ron)**

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

ECP-031: Pending. Upon approval of the ESAAB by the Deputy Secretary, ECP31 will establish the new baseline.

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

August 30 at 11:30am IPT Call (\*\*note new time\*\*)  
September 20 at 11:30AM IPT call  
Nov 2-3 Next Lehman Review