

NSTX Weekly Report (Dec. 17, 2004)

FY2005 Planned Operations: 14 weeks
Completed: 0 weeks producing 0 plasmas

Department, Project, Program (M. Ono, M. Peng, E. Synakowski)

- NSTX has contributed 90 time slices to the ITPA H-mode confinement database and 16 time slices to the L-mode database. Data is being prepared for submittal to the H-mode threshold database. (S. Kaye)
- R. Maingi (ORNL) gave a seminar at C-MOD titled: "ELM Studies in NSTX". There was particular interest in the similarity between the C-MOD EDA regime at high beta with individual ELMs and the NSTX Type V ELM regime. There was also substantial interest in the effect of shape and neutrals on the L-H power threshold. A joint experiment is being discussed to compare these scenarios. (R. Maingi)
- R. Maingi and L. Roquemore presented (via tele-conference) a diagnostic proposal titled "ELM Imaging with a Fast Camera on DIII-D", in collaboration with N. Nishino from Hiroshima U. The talk was the basis for the physics validation review, a step before the conceptual design review. A few issues will be resolved before proceeding to the CDR. The goal is to obtain ELM imaging data on DIII-D before the 12 month long vent scheduled for April 1, 2005. (R. Maingi)
- The December NSTX Team Meeting was held on Wednesday, December 15, 2004. The presentation material is available on the NSTX web page.
- The NSTX quarterly report video-conference was held on December 18, 2004. The topics discussed were the NSTX outage status and the FY 04 year-end-report and proposed FY 05. milestones.

Research Operations (M. Bell)

Diagnostic Operations (R. Kaita)

- Spatial and "white plate" calibrations of the CHERS ion temperature, ERD plasma rotation, and the MPTS Thomson scattering diagnostics were completed.
- The flux loops and thermocouples were installed on the new lower PF1A and PF1B poloidal field coils.
- All three of the redesigned plasma current Rogowski coils have been wound. The installation of an electrostatic shield around each of them has begun.

Boundary Physics Operations (H. Kugel)

- A requisition was awarded for a bellows motion drive for a Moveable GDC Anode.
- Final fit up was started for Deposition Monitors at the upper and lower divertors and the midplane. (C. Skinner)
- The UCSD Fast Probe was reinstalled at Bay-I.
- Off-line calibration of a new IR Camera and windows was initiated in preparation for calibrations during Bakeout. (R. Maingi, ORNL)
- A controls design for the SGI probe and prototypical of controls needed for the Moveable GDC anode is under review. (P. Sichte)
- Designs for 3 advanced styles of SGI nozzles were completed, and fabrication drawings are in progress. (V. Suckhanovskii, LLNL)

Engineering Operations (A. von Halle, C. Neumeyer)

The NSTX outage continued this past week with the mounting of the flux loops, magnetic sensors, and insulation on the PF1A/1B lower coils, and the installation of these coil assemblies and center stack casing into the vacuum vessel. Fabrication of the new PF1A upper coil has started in the coil shop. Diagnostic calibrations and the welding of the last protective plate cooling tubes continued inside the NSTX vessel over the weekend, and activities to clean, photo, and close the vacuum vessel are scheduled for early this week. The assembly and vacuum leak checking of the NB duct with the bellows is complete, and its installation this week will be the final activity before vessel pump-down. The assembly of the TF flag boxes continues, as well as the installation of the switching power amplifier to power the RWM error field coils. The new plasma current Rogowski coils are on site and are being prepared for installation.

There are no NSTX test cell access restrictions expected this week. (A. von Halle)

Status Report of the RWM Coil Switching Power Amplifier Installation Work (C. Neumeyer):

- All three power cables from FCPC to NSTX Test Cell (NTC) have been terminated in the NTC RWM Junction box. The cabling within the test cell for all RWM coils has now been installed and terminations will be completed before 12/22/04. The P13 Transrex circuit (which will be dedicated for RWM) has been

completed, and only the load cables to the SPA remain to be installed. The penetrations for the safety disconnect switch (SDS) to SPA power cables and those for the control rack are scheduled to be completed by 12/16/04. It has been decided to run temporary water lines to the SPA. The penetration to run this water line is scheduled to be performed on 12/18/04. The temporary water lines are scheduled to be installed before 01/15/05. The SPA will be hydro-tested before 01/18/05. The SDS is expected to be shipped before 12/22/04 and will be installed in January 5. A meeting was held to discuss the progress of the SPA/RWM tasks. The projected date of completion of the installation activities is around mid-February 2005, pending resource availability. Preliminary measurements of the resistances of the power cables from the FCPC to NTC were performed. On the software side, the simulation of RMW coil currents is working but needs to be tested. In addition the communication of the control voltages to SPA is ready but needs to be tested. The acquisition system has been exercised with newly commissioned Stand-Alone Digitizer (SAD) digitizer.