NSTX Weekly Report (Apr. 1, 2005)

FY2005 Planned Operations: 17 weeks
Completed: 0 weeks producing 0 plasmas

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

• M. Peng (ORNL)attended the 34th meeting of Fusion Power Coordinating Committee (FPCC) and a pre-meeting at the International Energy Agency (IEA) headquarters in Paris, France, during March 21-22, 2005. The meeting was attended by members of the FPCC representing about 20 countries and the European Union, the IEA representatives, and the Chairs of Executive Committees of the IEA fusion-related Implementing Agreements. (M. Peng)

• Y. Ono and E. Kawamori of University of Tokyo, Japan are visiting NSTX under the US-Japan collaboration agreement. They are collaborating on the plasma equilibrium reconstruction with ion flow and the solenoid-free plasma start-up in NSTX using plasma merging which was demonstrated on TS-3/4 at University of Tokyo.

• There will be an NSTX Physics meeting on Monday, 4/4 at 1:30 pm in LSB318. E. Kawamori (Univ. of Tokyo, Japan) will speak on: Reconstruction of Equilibrium of NSTX Spherical Torus with Ion flow. (S. Kaye)

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

The NSTX outage concluded this past week with the completion of the TF coil installations, and the restoration of power system buswork and coil cooling systems. The TF inner bundle, as well as the inner and outer vacuum vessel segments, have successfully completed insulation testing (HiPots) to allow for 2kV Coaxial Helicity Injection (CHI) operations. The Switching Power Amplifier (SPA) supply needed to power the Error Field and Resistive Wall Mode (EF/RWM) coils has completed power testing in its final configuration, powered by a Field Coil Power Conversion (FCPC) system rectifier. The neutral beam ion sources have completed low voltage conditioning operations, and will be conditioned through full operating ranges during coil power testing and subsequent plasma operations. In addition to the resumption of plasma operations this coming week, a Rayleigh scattering calibration of the MPTS, and a neon glow calibration of the CHERS diagnostics are scheduled for this coming week.

There will be no access to the NSTX test cell during coil power testing and plasma operations during the 1st shift this coming week. In addition, the run day will be extended to 7PM on Tuesday for full power operations, and to 7PM on Thursday for the neon glow. The test cell will be in controlled access each

evening from the end of run day until 10PM. A machine area scrub will be performed from 10-11PM each evening in preparation for the following day's run. (A. von Halle)

Research Operations (M. Bell)

Boundary Physics Operations (H. Kugel)

• The LPI reached a base pressure of 7 x10-7 torr following a brief mild bake. Residual preparations for NTC installation are in progress.

• A meeting of the Boundary/Edge Physics ET discussed the XP, “ELM Control with EF Compensation Coils - DIII-D Collaboration” by S. Kaye et al. A final review was held for XP523 "JSOL Width Scaling, Profiles, and Power Balance Measurements" by J. Boedo (UCSD) et al. (R. Kaita)

Diagnostic Upgrades (D. Johnson)

There was a successful Final Design Review for the High k Scattering Bay K Collection Assembly. Fabrication of the support assembly is underway. Procurement of optical mounts and actuators can now proceed. A number of interferences were identified. A challenge will be resolving these interferences and fitting necessary installations into a busy NSTX run schedule.

Diagnostic Operations (R. Kaita)

• The alignment of the multipoint Thomson scattering lasers was completed. The Rayleigh scattering calibration is planned for the end of next week.

• Sensor polarity checks of the magnetic sensors reinstalled on the air side of the vacuum vessel were performed. Additional insulation was applied to one of the plasma current Rogowski coil where it was in close proximity to sharp edges near the vacuum vessel midplane. This appeared to solve the problem with “hipot” failures between the Rogowski coil shield and the outer vacuum vessel.