

NSTX Weekly Report (Oct. 21, 2005)

FY2006 weeks of research operations

Planned: TBD

Completed: 0 weeks

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

- It is our pleasure to announce that the Run Coordinator for the next NSTX campaign will be Roger Raman of the University of Washington. He will be assisted by Steve Sabbagh of the Columbia University as the Deputy Run Coordinator. Please join us in working with them to make the next NSTX campaign another great success of the NSTX Team, and in thanking our 2005 Run Coordinator, Jon Menard, and Deputy Run Coordinator, Steve Sabbagh, for having done a super job for the 2005 campaign. (M. Peng, ORNL, M. Ono)
- For those of you making presentations at the DPP-APS meeting, please place your latest presentation material into the Drug-and-Drop, APS 05 area. There will be no NSTX Physics meeting on Monday, Oct. 24 due to the DPP-APS meeting. (S. Kaye)

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

The NSTX outage continued this past week with the removal of the Bay G port cover for modifications to provide a second viewing point for the EBW diagnostic. The TF inner bundle and OH coil assembly has been removed from the machine's center stack, and excavations of epoxy insulation around a leaking water fitting on the OH coil has been completed. A repair and test procedure to restore this cooling path is being developed and will be ready for review next week. In-vessel FARO arm measurements were completed at Bay F upper and lower this week in support of the new Lithium Evaporator design, and work is in progress to replace the window of the laser flight tube for MPTS.

Access to the NSTX test cell will be available via the card readers throughout this coming week. (A. von Halle)

Research Operations (M. Bell)

Diagnostic Operations (R. Kaita)

- All diagnostics were removed from the Bay G port cover so it could be taken off of the NSTX vacuum vessel. This will permit the machining of modifications required by the electron Bernstein wave diagnostic.
- The collaboration involving General Atomics, the Lawrence Livermore National Laboratory, and PPPL on NSTX divertor spectroscopy has been successfully

completed. Time-resolved measurements of various spectral lines, including CII, CIII, CD, and the deuterium Balmer series, were obtained from the detached inner divertor leg region. The spectrometer has been photometrically calibrated after the FY05 run. The data analysis is in progress and should yield important information about the inner divertor leg temperature.

- Two magnetic sensors inside the vacuum vessel have been found to be broken and need to be replaced.
- D. Pacella and G. Pizzicaroli from ENEA at Frascati in Italy visited last week. They discussed NSTX diagnostics with D. Johnson, R. Kaita, and G. Taylor of PPPL, including the possibility of using NSTX to test magnetic sensors under development at Frascati for future “burning plasma” fusion devices.

Boundary Physics Operations (H. Kugel)

- Twenty seven coupons were recently retrieved from the NSTX vessel and have been analyzed by nuclear reaction analysis (NRA) at Sandia National Laboratories (W.R. Wampler). The absolute density of deuterium, carbon and boron were measured with average D/C ratios of 0.6 and B/C ratios of 0.4. The deposition was strongly peaked toward the midplane. (C.H. Skinner)
- Welding jigs for LITER-1 Cartridges -A and -B were completed. Materials were received for fabricating both LITER-1 Cartridges. Main reservoir parts for LITER-1 Cartridges–A were completed, and some parts for Cartridge-B, and test weldings were performed. Materials were received for fabricating the Probe Bellows Motion Support, and the work has been scheduled. The NEPA review process has requested that LITER-1 radiological questions be addressed in the revised FMEA and SAD. A work plan was developed to initiate revisions of the FMEA and SAD (W. Blanchard)