

NSTX Weekly Report (Mar. 30, 2007)

FY 2007 NSTX plasma operations started on Feb. 19, 2007.

Planned: 10 weeks

Completed: 2.34 weeks (through Mar. 28, 2007)

Important Notice : NSTX TEST CELL ACCESS REQUIREMENTS HAVE CHANGED-

Effective immediately, radiation dosimeters are required for entrance into the NSTX Test cell.

Any individual that does not have a radiation badge and needs access to the NSTX test cell on a regular basis should see Cathy Saville for a regular dosimeter assignment. Individuals requiring temporary access to NSTX can be escorted into the area by another individual that has dosimetry however proper escort paperwork and dosimetry must be completed prior to the entry. This paperwork and dosimeter can be obtained at the HP offices. Again, see Cathy Saville.

All tours into NSTX must now have proper tour dosimetry and paperwork issued by Health Physics. Tours should be coordinated through Patricia Wieser. In her absence you may contact Cathy Saville directly for the appropriate paperwork.

There are NO special RWP sign in requirements with this change. Access in and out of the test cell remains the same with the exception that every individual in the test cell for any period of time and for any reason must be wearing a valid radiation dosimeter or be properly escorted by a PPPL employee that is wearing their valid dosimeter.

Failure to adhere to this new requirement will be a violation of 10CFR835, the federal regulation governing our radiation safety program, and will result in a Price Anderson Act Violation which must be reported. So please pay attention to any postings prior to entering a radiation area anywhere on site. There are other areas that require dosimetry. (George Ascione, Manager, Health Physics)

- N. Tamura (NIFS, Japan) under the US-Japan Exchange Agreement participated in the NIFS-JHU-NSTX collaboration experiment on Tracer Encapsulated Solid Pellet (TESPEL) injection for the temperature perturbation and impurity transport studies. TESPELs prepared at NIFS were injected into NSTX H-mode and L-mode plasmas. (H. Kugel)

- There will be an NSTX Physics meeting on Monday, April 2 at 1:30 pm in LSB318. The agenda will be: D. Gates – Update on machine conditioning and comparison with last year's discharges, L. Delgado-Aparicio – Summary of Z-scaling of impurity transport (XP716). The presentation will be placed in the usual Monday Physics Meeting folder in the Drag and Drop area. (S. Kaye)

Run Coordination (D. Gates, M. Bell)

On Tuesday March 27th, the machine was recommissioned after the brief opening to repair the neutral beam calorimeter bellows. The RF antenna was conditioned in the morning up to 1.8MW in helium plasmas. Electron temperatures up to 2.8keV were achieved. This was followed in the afternoon with neutral beam conditioning (XMP-48) into a standard double-null high-triangularity discharge. A full boronization was completed in the evening.

On Wednesday March 28th, additional beam conditioning (XMP-48) was performed in the morning to assess the quality of machine conditions following the boronization. The first 1MA, 1s pulse of the year was achieved during this XMP. In the afternoon, XMP-49 – TESPEL pellet injection was executed in collaboration with N. Tamura of NIFS.

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

NSTX Operations resumed this week after the completion of the neutral beam calorimeter repair, a bake of the NSTX vacuum vessel, and the reconditioning of the neutral beam ion sources to a combined neutral power of 6MW. The HHFW systems were conditioned to 1.8 MW into plasma, and machine conditions supported 1MA discharges for 1 second with neutral beam injection. The lithium pellet injector was used to complete an experiment on TESPEL pellet injection, and progress was made on an experiment developing high elongation plasmas with high bootstrap current at machine fields to 5.5kG. Thirty point multi-pulse Thomson scattering diagnostic data was available this week.

The NSTX test cell will be in restricted access during plasma operations this coming week. Access to the test cell will be available from 5PM to 10PM on Monday through Friday.

Research Operations (M. Bell)

Physics Operations (D. Mueller)

- PCS Upgrade - Integrated software tests were performed and remaining run-time bugs were addressed. Preparations are underway to prepare for operation of the combined ACQ, PCS, and PSRTC software suite in parallel with actual machine operations taking data on the new control computers. The outputs of the PSRTC code will be compared to those from the version of PSRTC on the SKY computers. (D. Gates)

Boundary Physics Operations (H. Kugel)

- The Lithium Pellet Injector (LPI) was prepared and baked to support Tracer Encapsulated Solid Pellet (TESPEL) experiments. TESPELs were loaded into standard LPI sabot cartridges. TESPELs were injected routinely into 13 NSTX NBI H-mode and L-mode discharges. (T. Czeizinger, G. Gettelfinger)
- Results from lithium and deuterium measurements using Ion Beam Analysis (IBA) of lithium coated graphite tiles from NSTX LITER experiments were received from SNL. (W.R. Wampler, SNL)
- J. P. Allain (ANL) visited NSTX and presented preliminary results on surface analysis measurements of lithium coated graphite tiles from NSTX LITER experiments. (C. H. Skinner)
- A mockup of the LITER-1d output duct was thermally tested off-line to mid-duct temperatures of 891°C. (S. Jurczynski)
- LITER-1d maintenance of internal heater connections was completed, and preparations are in progress for installation on NSTX.

Diagnostic Operations (R. Kaita)

- The MPTS Thomson scattering diagnostic started delivering 30-point radial profiles data between plasma shots. While 30-point profiles for 2005 and 2006 was made available after these experimental runs, it is the first time that such data is delivered between plasma shots, typically within two minutes following a discharge. (B. LeBlanc)
- The repairs to the power supply for the high-k scattering turbulence diagnostic were successful, and the unit is operational.
- The mechanical adjustments made by Lawrence Livermore National Laboratory XEUS X-ray diagnostic during the recent maintenance period were able to recover the signal levels to earlier values.