

NSTX Weekly Report (Sept. 26, 2008)

FY 2008 NSTX plasma operations

Planned: 15 run weeks

Completed: 16.62 run weeks, 2571 plasmas (run completed on July 14, 2008)

- The contributed poster "Physic Design Requirements for the National Spherical Torus Experiment (NSTX) Liquid Lithium Divertor", H. W. Kugel, et al. was presented at the 25th Symposium on Fusion Technology (SOFT), 15-19 September 2008, Rostock, Germany. (H. Kugel)

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

The NSTX outage continued this week with the reassembly of the lower TF hub after the cleaning and silver plating of the lower TF flag joints. Inspections of the upper TF joints will begin this coming week. In-vessel, the re-working of the RF feed-through fasteners for the HHFW antenna upgrade has been completed, and the preparations to machine the BES diagnostic vacuum vessel port continued. The shops are working on parts for the OH Bus upgrade, modifications to the Faraday Shields for the HHFW Antenna, and the support stand for the new MSE-LIF diagnostic. NSTX diagnostic window and TIV maintenance continues in the Vacuum Prep Lab.

The NSTX test cell will be in free (card reader) access this coming week.

Research Operations (M. Bell)

Boundary Physics Operations (H. Kugel)

- Liquid Lithium Divertor (LLD)
 - An analysis of the pros and cons of 4 proposed LLD manufacturing approaches was performed by the SNL Materials Characterization Department. NSTX reviewed the results and recommended pursuing one of 2 possible SNL recommended centrifugal spin casting approaches. In parallel with this SNL effort, that may involve some engineering R&D, PPPL shops, adopting experience in part from the LTX effort, will investigate a braze/bending approach for fabricating the LLD. (R. Ellis, III)
 - A teleconference was held to coordinate the SNL final design materials needed to be received in preparation for the LLD Controls FDR.
 - A Peer Review of the LLD 2D magnetic sensor changes and the LLD center-post Halo Current Rogowski Coils was presented by S. Gerhardt.
- Lithium Sample Testing (R. Kaita)
 - Hydrogen Glow Discharge Cleaning (HGDC) capability was installed in the L-245 lithium test chamber, and HGDC is in progress to simulate what can be done in situ on NSTX to "reduce" the molybdenum oxide on the LLD plasma-facing substrate. After the effects of HGDC are characterized, the testing will proceed with the solid lithium loading. Since the sample can be heated, it will be possible to test under vacuum conditions, the lithium wetting successfully achieved under argon in the L-111 Glove Box.