NSTX-U Weekly Report (July 31, 2015)

NSTX-U is in the Upgrade Project outage in FY 2015

REMINDER: The 18th International Spherical Torus Workshop (ISTW-2015) will be held on main campus of Princeton University - Tuesday-Friday, November 3-6, 2015. **The deadline for abstract submission is August 14, 2015.** Visit: http://istw-2015.pppl.gov/abstract-submission to submit your abstract and visit http://istw-2015.pppl.gov/ for other details. (J. Menard, PPPL)

Dr. Zixi Liu (ASIPP) arrived for a 1 year stay at PPPL, following a 1 year stint at GA. Dr. Liu will focus on H-mode pedestal physics during his assignment, with some emphasis on BOUT++ calculations of the NSTX and NSTX-U boundary plasmas. In addition, Dr. Liu has an interest in L-H transition physics, and the effects of Li on both the power threshold and pedestal dynamics. (R. Maingi, PPPL)

Experimental Research Operations (S. Gerhardt, R. Kaita)

Gas Injection System calibrations with calibrations of plenum pressure sensors and plenum volumes were started.

The physics operators course continues this week with the following lectures:
- Ray Camp (PPPL): COE and Machine Operation
- Weiguo Que (PPPL): NSTX-Upgrade Power Supply Systems

The Multi-Pulse Thomson Scattering (MPTS) detection hardware was restarted. The two cameras that view the laser controller screens have been put back in service. Significant progress has been made toward the use of IDL-base software to analyze the videos from the laser path optics IDS cameras. Realtime operation was tested while the Nd:YAG beams were terminated into a light trap located inside the laser optics enclosure on the test-cell south wall. The alignment He-Ne laser beam was threaded through the laser delivery optics using two pivot points: (1) at the output of the focusing doublet and (2) at its focal point. Adjustment of the laser delivery optics mirrors were made based on the He-Ne beam and integrated target reticles instrumented with cameras. We then send Nd:YAG test pulses in order to verify the positions of the beams on the exit path target/reticle cameras. The beam positions were acceptable. We open the shutters of the MPTS viewing window. We then took three stray laser light realtime shots. The data at the radial location closest to the center stack had the highest signal. Overall the operation was successful, although the detection electronics of four of the 42 radial channels do not appear to function properly and will require additional work. Investigation of the telemetry data has not been done so far. (B. LeBlanc, PPPL)

The outer leg TF Rogowski coil was installed. Pneumatic actuators were installed on the Divert or Tangential Imaging diagnostic. Measurements of mirror and target travel as a function of actuator position were completed. A successful final design review for the Fusion Products diagnostic was held on July 31. (R. Ellis, PPPL)

Run Coordination (J. Menard, S. Gerhardt)

The following NSTX-U XPs (eXperimental Proposals) were approved by run coordination:
- XP1505 Boronization Optimization by C.Skinner
- XP1507 Maximizing the non-inductive current fraction in NSTX-U H-modes by S. Gerhardt
- XP1512 Characterization of the Pedestal Structure as function Ip, BT, and Pnbi by A. Diallo
- XP1529 Controlled introduction of Lithium into NSTX-U by R. Maingi

The following XMPs (eXperimental Machine Proposals) were approved:
- XMP-104: MHD Spectroscopy Checkout by Jack Berkery

Engineering Operations (A. von Halle, P. Titus)

Preparations for NSTX-U Power Testing continued this week with Test cell scrubs and the replacement of bus-work in the power cable termination structure (PCTS). Coil system pre-operational testing has been completed and documented, and impulse testing of the OH coil was successfully completed. A new run copy of OP-NSTX-02 the NSTXU Startup Procedure is in force and recording the completion of the preparation activities.

Access to the NSTX-U Test Cell is expected to be available this coming week. Access must be arranged through Work Permits approved by the D-Site Shift Supervisors.