

NSTX-U Weekly Report (January 9, 2015)

NSTX-U is in the Upgrade Project outage in FY 2014

The first preparatory “Pre-Forum” meeting for the upcoming NSTX-U Research Forum was held on Tuesday, December 16, 2014 at PPPL. Agenda items included discussions of: the new organizational structure including roles and responsibilities of the various groups, issues raised during the one-on-one discussions with new group leaders and university representatives, and the procedures for proposing a machine and experimental proposal. Topical science group leaders also presented initial/draft lists of Experimental Machine Proposals / Experimental Proposals (XMP/XPs) topics/titles deemed necessary to re-commission systems and diagnostics and to cover approximately the first run-month of research operations. A more comprehensive Pre-Forum meeting #2 will be held on January 28-29 also at PPPL to discuss operational status of diagnostics and other systems, and to have additional discussion of preparatory XMP/XPs. Detailed information on both Pre-Forum meetings can be found at: <http://nstx-u.pppl.gov/research-forum/nstx-u-research-forum-2015/pre-forum-meetings> (J. Menard, PPPL)

A new postdoc, Dr. Gustavo Canal, has recently joined the General Atomics (GA) collaboration on plasma boundary interfaces and macroscopic stability at NSTX-U. Dr. Canal’s graduate research focused on sawtooth generated magnetic islands and properties of the snowflake divertor in the TCV tokamak. He is currently familiarizing himself with codes and analysis tools at GA prior to the start of NSTX-U physics operations and will then move to PPPL as a fulltime onsite collaborator. (T. Evans, GA)

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

NSTX Upgrade activities continued with the ongoing pump-down and leak check of the NSTX-U vessel. A leak at the bay J mid-plane port has been addressed, and crews are in the process of replacing the upper vessel O-Ring. All PF bus has been fabricated and ready for installation. Trial fit-up of TF bus continues.

The Digital Coil Protection System (DCPS) and the Power Supply Real Time Control (PSRTC) development efforts are working towards the start of Field Coil Power Conversion System dummy load testing. PSRTC testing continues to make good progress with current and voltage control successful demonstrated for both unipolar and bipolar supplies, and in good agreement with 2009 ISTP test data.

Preparations of non-upgrade equipment for plasma operations in the NSTX-U configuration also continued. Reactivation and open circuit testing of the Field Coil Power Conversion System rectifiers has been completed, and preparations are underway to start dummy load testing. The D-Site Motor Generator Set #1 was successfully run to ~300rpm (adequate to support NSTX-U CD4 and FY15 operations) before the holiday and the vibration/shaft run-out measurements were found to be well within allowables. Dewars of helium have been loaded into the Neutral Beam Helium refrigerator and operations to liquify the inventory needed to support beam conditioning continues around the clock. Installation of fire protection systems for the new deuterated trimethylboron (dTMB) injection system is in progress, and installation of the Multi-Pulse Thompson Scattering (MPTS) diagnostic flight tubes continues.

Access to the NSTX test cell will be available only through previous arrangement with the Upgrade Work Control Center.