

NSTX-U Weekly Report (September 19, 2014)

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

The paper, "Design details of the transient CHI plasma start-up system on NSTX-U," by R. Raman (Univ. of Washington), et al., was published on-line in the IEEE Transactions on Plasma Science, **42**, No. 8, 2154, August 2104. The paper describes the engineering systems needed for initiating a CHI discharge on NSTX-U, and simulations with the TSC code for initial CHI plasma start-up scenarios on NSTX--U. (R. Raman)

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

NSTX Upgrade activities continued with the completion of hydrostatic and flow testing of the lower & upper TF bulkheads of the TF/OH centerstack. The TF/OH centerstack has now been stood upright and is being prepared for the installation of the PF1A Lower coil. Work remains on track to move the TF/OH assembly to the South High Bay early in October to be installed in the centerstack casing. The assembly of the centerstack casing continues with the installation of plasma facing tiles. The PF1C lower coil has passed its vacuum leak check, and is being prepared to be installed on the lower ceramic break. In the NSTX-U Test Cell, the in-vessel calibration of the bay B CHERS window was completed, and the in-vessel floor and ex-vessel 109' platform at bays A and L are being removed to allow for the lower ceramic break and centerstack pedestal installation. The turbo pump ducts were vacuum leak checked this week, and the fiber-optics for the new TF Turn-to-Turn fault detection system were installed.

Commissioning of the new Digital Coil Protection System (DCPS) interconnection system continued with ongoing pre-operational testing in the Field Coil Power Conversion System Junction Area utilizing the autotester function. An I/O error was identified, and an individual PCB rework is in progress. Additional testing tools to verify all real time PC Analog Inputs and Digital I/O have been proposed. Testing of the DCPS computer timing /triggering systems also continued. Good progress is being made on the Power Supply Real Time Control (PSRTC) software specification. Real time control open issues are being addressed and retired.

Preparations for plasma operations in the NSTX-U configuration also continued. The chemical cleaning of the D-MG set stator cooling paths is currently on hold while throughput leaks of isolation valves are addressed. All parts are readily available and a procurement action has been started. The fabrication of ex-vessel MPTS diagnostic equipment such as the Collection Optics Box and the Flight Tube Assembly is in progress in several PPPL shops.

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