

## NSTX-U Weekly Report (February 6, 2015)

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

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

NSTX Upgrade activities continued with the ongoing installation of coil system bus work. Electrical insulation tests of installed bus work will be performed over the weekend. Installation of vessel gas injectors and piping also 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 (FCPC) System dummy load testing. All pre-operational tests of the DCPS and the PSRTC have been exercised, and the cause of an intermittent control signal interruption between the RTC output and rectifier firing generator input has been identified and corrected. The PSRTC I/O tests will be repeated as one last step before moving to power supply dummy load testing.

Preparations of non-upgrade equipment for plasma operations in the NSTX-U configuration also continued. Preparations to start the dummy load testing of the FCPC rectifiers are in progress. Test cell wiring and fiber-optic connections to commission the new Plasma Current ( $I_p$ ) calculator have started, and the DCPS Autotester will be used to generate the waveforms that will be used to test and calibrate the  $I_p$  calculator functions. Recommissioning of Test Cell CAMAC systems continues. A Run Copy of OP-NSTX-02 (Start-Up of NSTX-U) has been issued, and sign-offs continue.

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

Work continues on the OH cooling water preheater system. Preliminary results of the CTD insulation array tests have been received and are favorable. Both misaligned and aligned samples have been tested, and no electrical failures have been reported after 30,000 controlled strain cycles. Based on these results, the preheater system does not have to be fully operational for CD-4. Mechanical behavior of the samples shows some progressive reduction in the moduli of the samples indicating some degradation to the inter-laminar bonds. (This was to be expected.) The conductors are wrapped with Kapton inter-leaved with glass with the expectation that some mechanical strains would have to be accommodated. Completion and operation of the preheater system is still planned to simplify operation and reduce mechanical strains in the insulation system over time, and to support OH coil temperature adjustments to minimize the OH interaction with the TF due to the Aquapour remaining in the interface gap. (P. Titus)

# NSTX-U In-Vessel Photo

