

NSTX-U Weekly Report (Mar. 28, 2014)

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

Two recent NSTX papers were featured among papers of other top authors in the 2013 Nuclear Fusion Highlights collection: (1) "Overview of physics results from the conclusive operation of the National Spherical Torus Experiment, by S.A. Sabbagh (Columbia University), et al.", and (2) "Dynamics of the disruption halo current toroidal asymmetry in NSTX" by S.P. Gerhardt (PPPL) et al. The entire list of papers can be found on the Nuclear Fusion website here: <http://iopscience.iop.org/0029-5515/page/Highlights-of-2013> (S.A. Sabbagh)

R. Goldston and R. Maingi of PPPL served as expert speakers for a fusion technology panel at the ANS Student conference at Penn State University Park on 4/4/14. Goldston presented a talk "Basics of Magnetic Confinement Fusion", in which both basic principles and a few details of ITER were covered. Maingi presented "Fusion Technology and Science: Control of Transients in the Plasma-Material Interface", partly highlighting anticipated NSTX-U contributions to ELM control physics. Both talks prompted additional discussions with students following the panel presentations. (R. Maingi)

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

NSTX Upgrade activities continued with the ongoing work to wind the new OH coil on the inner TF bundle. The winding has reached the end of the third layer, and conductors have been cut to make the brazed transition to the fourth and final layer. The installation of the new NB2 duct has been completed (see photo, below). The reflectometer has been installed in-vessel, and the installation of new Langmuir probes continues.

Phase 1 testing of the new Digital Coil Protection System (DCPS) software continued this week utilizing both the DCPS internal Auto-tester and the NSTX-U Facility Clock. The DCPS test plan is being updated to include initial test results and comments from peer reviews.

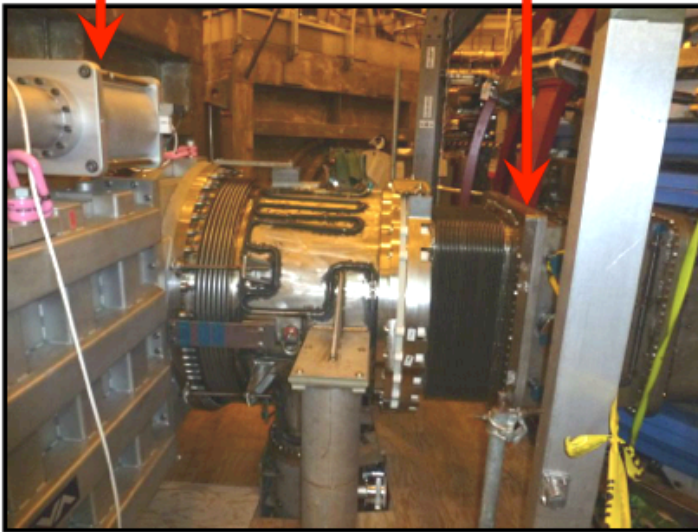
Preparations of non-upgrade equipment for plasma operations in the NSTX-U configuration also continued with the preparations of the Field Coil Power Conversion (FCPC) system for upcoming power testing. Commissioning of the new fiber-optic links between the Junction Area and FCPC rectifiers for control of the new firing generators is in progress, and maintenance of the bus-work/cabling in the Power Cable Termination Structure (PCTS) continued.

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

Final 2nd NBI Component being Installed

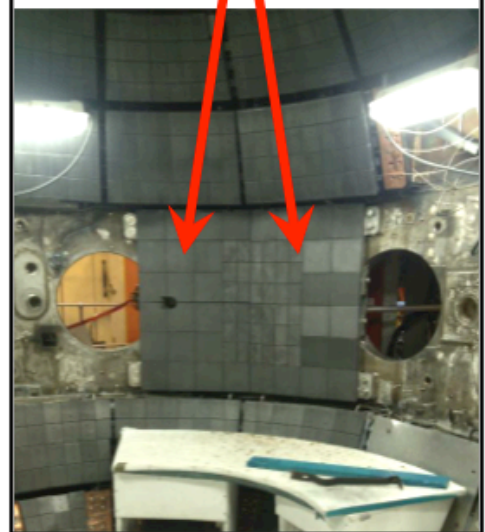
2nd NBI duct with pumping section and NBI armor installed

Neutral Beam &
TIV valve



Vacuum Vessel Bay
J/K port

Neutral Beam
Armor Installed



Source installation
planned for June