

NSTX-U Weekly Report (January 30 2015)

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

A two-day “pre-forum” meeting was held on January 28-29 at PPPL. The goal of this meeting was to help ensure that NSTX-U scientific research can begin as soon as possible and that FY2015 NSTX-U research and FES Joint Research Target (JRT) milestones are successfully met. The first day of the meeting focused on operations, diagnostics, and software support status. The goal of presentations from this day is to provide materials for team members to use in writing eXperimental Machine Proposal (XMP) and eXperimental Proposal (XP) ideas for the forum - in particular estimates of which NSTX-U capabilities will be available and when. The second meeting day provided a program update on group roles and responsibilities, and also discussed commissioning and initial operations. The primary goal of this meeting day was to discuss topics, titles, and nominal authors of XMPs and XPs to cover the commissioning phase (run month #1) and first research phase (run month #2) of NSTX-U operation. The meeting agenda and presentations are archived at this URL:

<http://nstx-u.pppl.gov/research-forum/nstx-u-research-forum-2015/pre-forum-meetings>

J. Menard (PPPL)

Seniors Cynthia Guo and Rohan Khodiam from High Technology High School in New Jersey completed a research project that was begun last fall at PPPL. They investigated liquid metal embrittlement by subjecting stainless steel samples to liquid gallium under different temperatures and stress levels, to determine if they had any effect on their yield and ultimate strengths. Their experiments were prototypes for future studies with liquid lithium, since it will be contained in stainless steel components as part of future divertor concepts for NSTX-U. (R. Kaita, PPPL)

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

NSTX Upgrade activities continued with the commissioning of the Torus Vacuum Pumping System (TVPS) and Residual Gas Analyzer (RGA), and ongoing vacuum vessel leak checking indicates that vessel integrity is good. Installation of coil bus work and gas delivery system injectors and piping continues to make good progress.

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. DCPS pre-operational tests have been completed, and the development of the procedure for setup and daily check of the DCPS is nearing completion. Pre-operational testing of the PSRTC is also nearing completion. An intermittent anomaly seen between the RTC output and rectifier firing generator input is being investigated.

Preparations for plasma operations in the NSTX-U configuration also continued. Power supplies for the second neutral beam are being maintained and tested, and dummy load testing of the FCPC rectifiers is scheduled to start this coming week (open circuit testing has already been completed). A Run Copy of OP-NSTX-02 (Start-Up of NSTX-U) has been issued, and sign-offs have started.

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