

NSTX-U Weekly Report (Jan. 31, 2014)

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

The article titled, "The effects of increasing lithium deposition on the power exhaust channel in NSTX" by T.K. Gray (ORNL) *et al.*, has recently been published in *Nucl. Fusion* **54** 023001 (2014). The paper documents reduced divertor surface temperature and heat flux in the NSTX divertor with the application of sufficient lithium coverage. While the mechanism for the heat flux reduction is not yet understood, a relative increase in SOL electron density and radiation were measured in conjunction with the heat flux reduction. Future work is focused on SOLPS modeling of the lithiated discharges to better understand the mechanism responsible for the reduction in divertor heat flux. (T.K. Gray)

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

NSTX Upgrade activities continued with the ongoing winding of the new OH coil on the inner TF bundle. Now that the first winding is complete, cutting/bending/brazing of the conductor to make the transition to the OH coil next layer is in progress. Winding of the second layer is expected to start this coming week in two-shift operations. The OH mold and its stand has been moved to the machine shop to be prepared for the upcoming coil VPI. Installation of mounting studs on the center-stack casing has been completed, and the welding of the bake-out /cooling tubes is scheduled to start next week. The new PF1B Lower coil has arrived at PPPL, and the PF1B Upper coil has completed its oven cure at the fabricator's shop.

Preparations for plasma operations in the NSTX-U configuration also continued with the calibration/setting of primary power system protective relaying for the Field Coil Power Conversion (FCPC) rectifiers and Neutral Beam power supplies. The Statement of Work for the contract weld repairs of the spider arms on MG Set #1 has been reviewed and approved.

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