

NSTX-U Weekly Report (December 15, 2017)

FY 2018 status: NSTX-U is in a maintenance and repair outage.

Recovery

A Preliminary Design Review (PDR) for the inner PF Coils was completed on December 14, 2017. The PDR highlighted the material testing and finite element analysis (FEA) techniques required to validate and verify the design. Reliability-driven enhancements to design and manufacturing based on lessons learned from the DVVR and Extent of Condition process were also reviewed.

A Systems Integration PDR was completed on December 15, 2017. The PDR highlighted the improved requirements management and change control program aspect of the Recovery project. Signed versions of the General Requirements Document (GRD) and key System Requirements Documents (SRDs) were presented to the review committee. Since these documents are the basis for the project baseline any needed revisions will go through a change control process.

Work continues in two parallel streams in the PPPL coil winding shop. Technicians are co-winding Glass and Kapton tape for use at PPPL and for shipment to the prototype subcontract coil shops. An innovative automated machine-vision tape inspection system has been deployed for tape quality assurance inspections. The second work stream in the magnet area is preparation for PF1 prototype winding at PPPL.

A new capture system for outboard high-heat flux tiles has been developed. The system features a compressible copper capture scheme which will restrain motion and lock components in place. This design solution was driven by the PPPL Design Review process in responding to PDR chits.

Research

Several NSTX-U team-members participated in the second U.S. Magnetic Fusion Research Strategic Directions Workshop hosted by the University of Texas at Austin on December 11-15, 2017. F. Ebrahimi presented the progress of the working group for Strategic Approach 3 in the area of “Theory and Modeling Innovations”. F. Poli and W. Guttenfelder served in leadership roles in the workshop discussion groups 3 and 5 respectively, and D. Boyer, R. Goldston, G. Hammett, R. Majeski, and S. Sabbagh also made significant contributions to workshop working groups and/or discussion groups. J. Menard served as a workshop co-chair and gave the workshop summary presentation “Overall Summary of Areas of Consensus / Non-consensus and Future Activities”.