

NSTX-U Weekly Report (September 30, 2016)

FY 2016 NSTX plasma operations completed Completed: 10.06 run weeks and 1066 plasma shots

The NSTX-U run assessment was held on Wednesday 9/28/16. This meeting featured two overview presentations followed by opportunities for the NSTX-U team (both PPPL and collaborator) to make comments on the key areas of i) communications and program direction, ii) collaborator support, and iii) run staffing and equipment needs. A comprehensive set of notes was collected, and are available via a link on the NSTX-U home page, <http://nstx-u.pppl.gov>. These notes will be distilled into concrete suggestions for the NSTX-U management. (S. Gerhardt, A. von Halle, PPPL)

Yuri Petrov, from CompXCo, visited PPPL from Sept 26 to Sep 30 to work with Francesca Poli and CPPG on the extension of GENRAY+CQL3D in TRANSP for analysis of NSTX-U plasmas with HHFW and NBI. The TRANSP executables have been updated to allow the Fokker-Planck calculations in the case of HHFW only and the complete loop has been successfully tested standalone on one time slice. The HHFW only case will be fully implemented in TRANSP following this test. (F. Poli, PPPL)

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

NSTX-U in-vessel diagnostic calibrations were performed this past week, and will continue through the first week of October. A review of the procedures and work packages for the dissection and analysis of the failed PF1aU coil was held, and the cutting fixture/test stand is being prepared. Work continues on the recommissioning of the coil winding facility. Oven duct and HVAC controls are being re-established, and the braking system on the winding pivot beam is being set up. Pre-operational test procedures are being developed, with plans to use legacy PF coil conductor for testing. Preparations are underway for the mid-October removal of the NB #1 & #2 calorimeters for maintenance. Also this week, the NSTX-U FY16 technical Run Assessment was held, soliciting input from the NSTX-U team on opportunities to improve Communication/Program Coordination, better support our Collaborators, and to better understand our run staffing and equipment needs.

Access to the NSTX-U Test Cell is expected to be available for approved work this coming week.

A Package Review for the destructive sectioning of the failed PF1A upper coil was held on September 29. The Review confirmed the completion of the necessary documentation required prior to sectioning the coil. Those documents included a pressure test procedure, a cutting procedure, release for fabrication drawings for fixturing and cutting, a NEPA form, and a tech shop work request. A JHA has been drafted, but will be completed during the Pre-Job Brief and walkdown. Any outstanding chits from prior Peer Reviews that were related to coil sectioning have been resolved. The PF1A-U fixturing should be fabricated during the week of October 3 with the actual coil sectioning following immediately thereafter. After the coil is sectioned, forensic testing will commence and will be guided by a test procedure currently being drafted. (I. Zatz, PPPL)

Good progress has been made on the area step-up for the in-house coil winding area. Tests are being done to qualify the conductor taping apparatus and tensioning device. Conductor purchase orders are in place with a late October delivery. Ordered conductors are sufficiently long to eliminate brazed joints in the new coil. The re-design of the new PF1A coils are also well along with a completion forecast for late October. Additional design efforts are underway for replacement of the center stack coolant lines, in-board divertor tile heating system. Other (misc) design efforts are underway to improve machine performance. (D. Loesser, PPPL)

Experimental Research Operations (S. Gerhardt, R. Kaita)

Calibrations continued during the week of 9/25-10/1. The week started with continued calibrations of the LLNL filtered imaging systems; both spatial and photometric calibrations were performed on Monday and Tuesday (F. Scotti). Wednesday and Thursday were used for photometric calibrations of the CHERS, vFIDA, ERD, and rtVPhi diagnostics (Liu, Bell, Pedestal). Friday morning was dedicated to photometric calibrations of the T-FIDA system in the AM (Liu), followed by calibrations of the shunt tile diagnostics in the afternoon. Saturday 10/1 was dedicated to in-vessel metrology of the plasma facing components and the vessel wall.