

Engineering Operations



Outage Schedule

- The vessel & beamline are under vacuum. 1st Bake-out complete. Air leaks found and fixed.
- The OH coil will be installed in about a week.
- The inner TF bundle and upper flags/boxes to be installed on March 14th
- General test cell access will end on March 14th. Machine techs will start two shift/day installation of lower flags/boxes and the flex bus, as well as “scrubbing” the machine areas.
- The ISTP (field coil power tests) will start on March 28th
- Plasma operations will immediately follow, with the 1st full week of operations beginning on April 4th.

TF Rework Final Design Review Held 2/10/05

- Epoxy potting improvements will overcome primary problem of 2004 run
- Friction coating on hub disks eliminates a weakness which would have been a limiting factor at higher fields
- *According to our analytic models....*
 - ✓ $B_t \leq 4.5\text{kG}$ operation should be robust
 - ✓ $4.5\text{kG} \leq B_t \leq 6\text{kG}$ operation is feasible but with some liftoff
 - ✓ Peak pressure at joint, and box/hub friction interface are limiting factors
 - ✓ Temperature at joint appears to be within allowables with flat top of 0.5 seconds

TF Commissioning

- 6kG operation as analyzed appears to be less severe than worst case joint behavior during prior run period, in terms of peak pressure at joint
- Instrumentation and data mining tools will guide the commissioning and benchmarking process
- Initial phase of commissioning will target 4.5kG level
- Later phase of commissioning will target operation above 4.5kG, approaching 6kG, pending results of benchmarking and experience at 4.5kG
- Simplified models have been developed for use in real-time protection which shall be implemented prior to operations above 4.5kG

Some Other Outage Activities

Welds have been restored in MG#2. Restart of that set is in progress. A more extensive rework of the MG#1 welds is in progress and will be complete after the start of the run.

Commissioning of the Switching Power Amplifier (SPA) to power the RWM error field coils is in progress with plans to complete dummy load testing by the end of March.

The CHI transient start-up capacitor bank will be brought on line this year with 2kV capability. Vacuum vessel sections are currently being tested for 2kV CHI Ops.



NSTX Run Schedule

A 2nd bakeout and hot boronization is currently planned for the 1st maintenance week.

The run is scheduled to go through the month of September with some “contingency” weeks to make sure we complete our 18 run weeks.

We will schedule two weeks in August as “firm” vacation weeks, and will keep the test cell open for maintenance on those weeks. The scheduling of the other maintenance weeks is somewhat flexible.

