

Notes from Centerstack Peer Review on May 18, 2011

1. Charge asks if the cost and schedule estimates have been updated, but these estimates were not part of this review.
2. Review does not include assembly sequence
3. Unknown if OH conductor can be purchased in sufficient lengths or if in-line joints are required. Are the costs for in-line joints included in the present estimates?
4. For the wound in place OH coil, it will not be possible to have conductive surface (ground plane) on inner diameter. (
5. Will save existing centerstack as an emergency back-up.
6. ENG-033 attachment 4 requires the following inputs to a peer review:
 - a. Updated work planning form: **not presented**
 - b. Requirements document: GRD rev 3, 12/15/10
 - c. Identify hazards and mitigations: **not specifically presented**
 - d. Resource, schedule and cost considerations: **not presented**
7. ENG-033 attachment 6 requires the following inputs to a design review:
 - a. Potential human or mechanical failures identified? Mitigations?: not presented
 - b. Latent errors in design?:
 - c. Does design take into account human factors associated with fabrication, installation, testing and operations?: not presented
8. Where is **proof** that thermal excursions will not unload the inconel super nuts and inconel studs that hold copper flex to copper lead extensions of the center bundle? (Jim C)
 - a. From Executive summary in Calcs
 - i. The results of the ANSYS multiphysics finite element analysis - electric, transient thermal, magnetostatic, and static structural - show that: 1.) the maximum equivalent stress in the laminations is 27.5 ksi, which is 25.5 ksi below the fatigue allowable for the full-hard C15100 copper-zirconium strip; 2.) the maximum equivalent stress in the copper threads is 29.1 ksi, which is 32.9 ksi below the fatigue allowable for the full-hard C18150 copper-chromium-zirconium plate; 3.) the minimum average contact pressure is >6500 psi, and the minimum local contact pressure is >2500 psi, which is 1000 psi above the design goal; and 4.) the lamination minimum linear buckling load multiplier factor (LMF) is > 58, which is approximately 10x the minimum allowable specified in the NSTX Design Criteria document. The results of the ANSYS multiphysics finite element analysis - electric, transient thermal, magnetostatic, and static structural - show that: 1.) the maximum equivalent stress in the laminations is 27.5 ksi, which is 25.5 ksi below the fatigue allowable for the full-hard C15100 copper-zirconium strip; 2.) the maximum equivalent stress in the copper threads is 29.1 ksi, which is 32.9 ksi below the fatigue allowable for the full-hard C18150 copper-chromium-zirconium plate; 3.) the minimum average contact pressure is >6500 psi, and the minimum local contact pressure is >2500 psi, which is 1000 psi above the design goal; and 4.) the lamination minimum linear buckling load

multiplier factor (LMF) is > 58 , which is approximately 10x the minimum allowable specified in the NSTX Design Criteria document.

9. Open structure of new umbrella lid will not protect conductors from dropped tools or fasteners and it will not contain any conductor failures. What will be done with hardware to mitigate this? (M. Smith)
10. What are the activation issues with the new coil insulations? Will the activation of any of the materials impact how fast we can get into the test cell following a shot and will the activation levels change out status into a Category 3 Nuclear Facility?
- 11.