NSTX Upgrade Status

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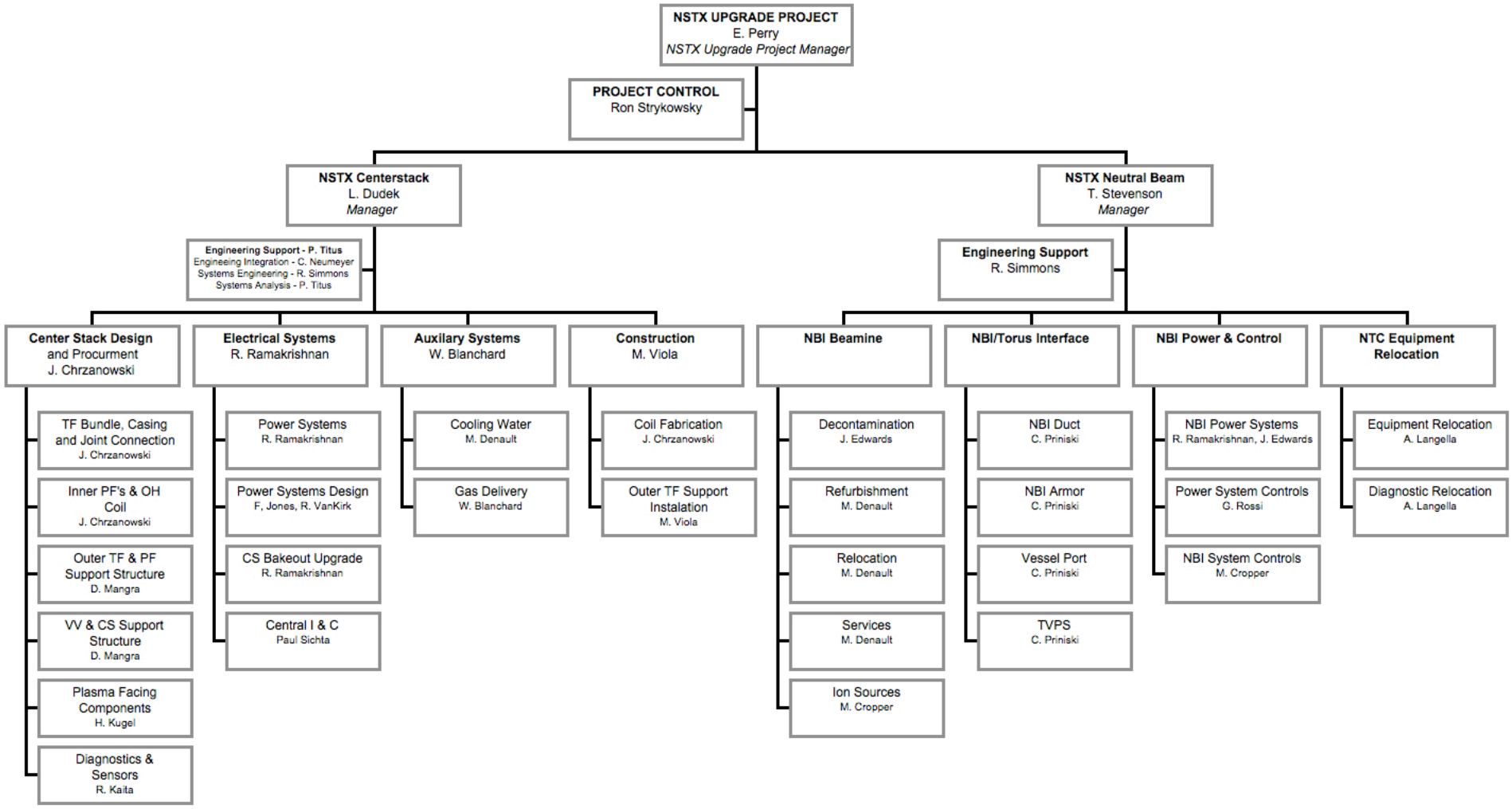
Deliverables for CD-1

- Work Planning Forms - *Complete*
- NEPA - *CX approved by DOE*
- General Requirements Documents - *Complete*
- Preliminary Project Execution Plan - *draft in preparation*
  - Project organization
  - Integrated Safety Management (ISM) Plan
  - Procurement/Acquisition Plan
  - Risk Management Plan
- Conceptual Design Review on October 29th
  - Technical Plans
  - Cost and Schedule estimates (range)
  - Risks and Contingencies

NSTX Upgrade Project Organization

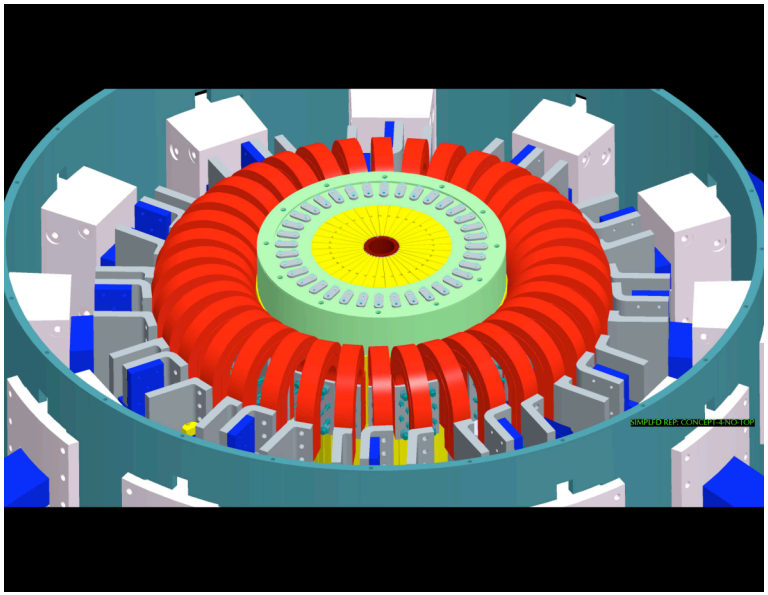


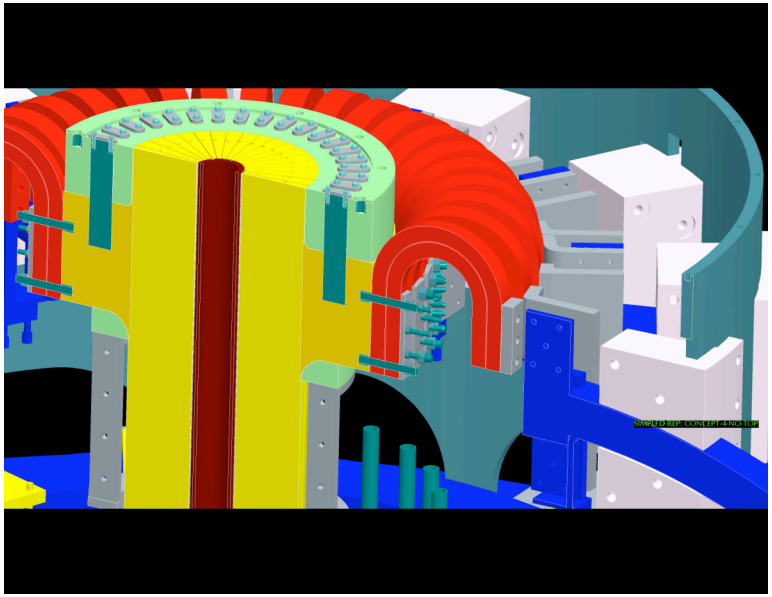
Milestones to get to CD-1

• Develop CDR Plan	March 2009	*complete*
• Define Design Options	April 2009	*complete*
• 2nd Neutral Beam Peer Review	June 2009	complete
• Centerstack Upgrade Peer Review	August 2009	
• Cost and Schedule estimates	September 2009	
• PPPL/PU CDR	October 2009	
• Lehman (SC) Review	December 2009	
• CD-1	December 2009	

Centerstack Upgrade Technical Risks

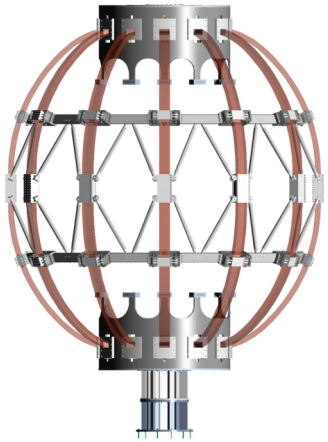
- Risk: The ability to find a cost effective TF Joint that works at higher fields.
  - Several TF joint concepts have been developed and reviewed.
  - One design has been selected
  - Will analyze and combine with good features from the other designs by August for presentation at the CDR.





Umbrella Structure and Vacuum Vessel Technical Risks

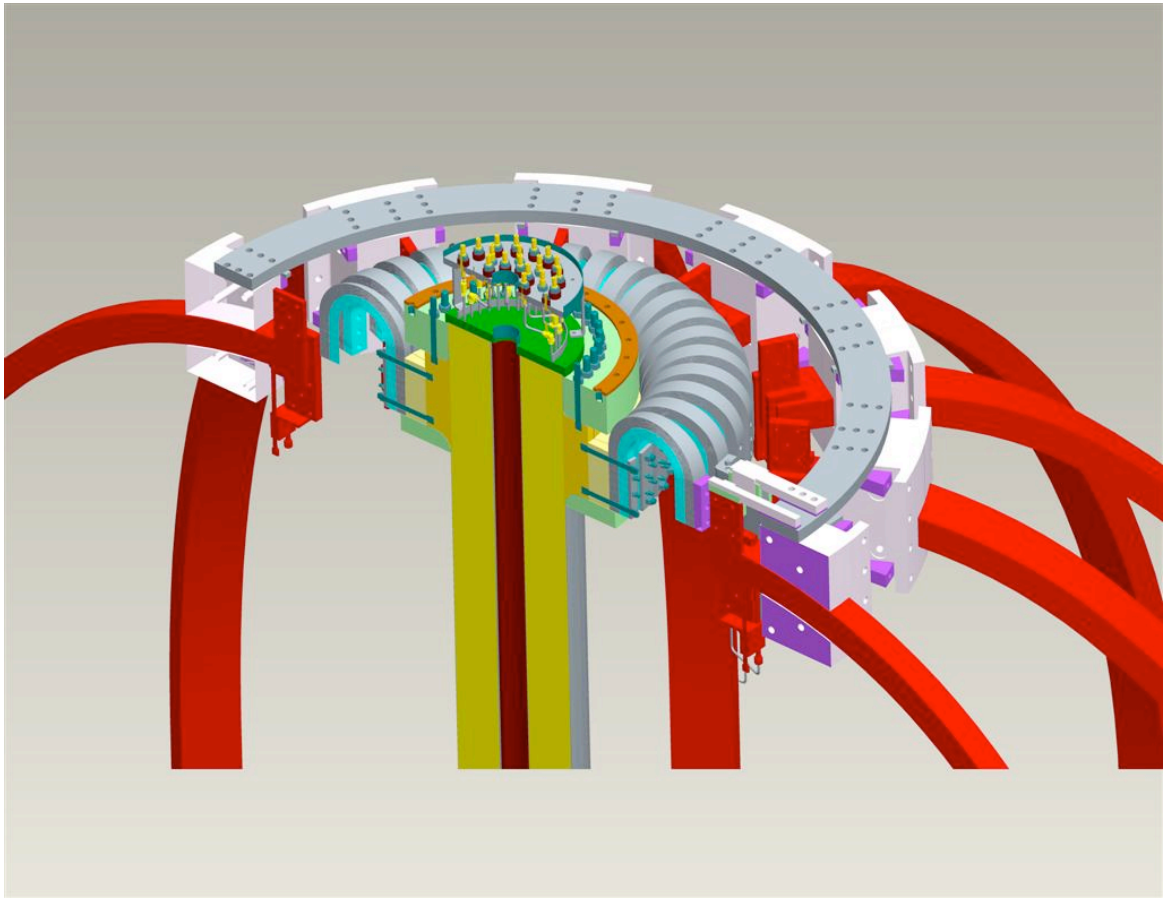
- Risk: Little room to re-enforce outer TF Legs and Umbrella Structure to handle higher loads.
  - Analysis to characterize the new loads is about 80% complete.
  - Bounding calculations and the use of mockups of potential new supports show that space is available without significant relocations of existing items



- Risk: The vacuum vessel may need to be re-enforced to accommodate higher loads.
  - Analysis shows that re-enforcing the vessel is only needed in a few locations
  - Access to these locations is straightforward.

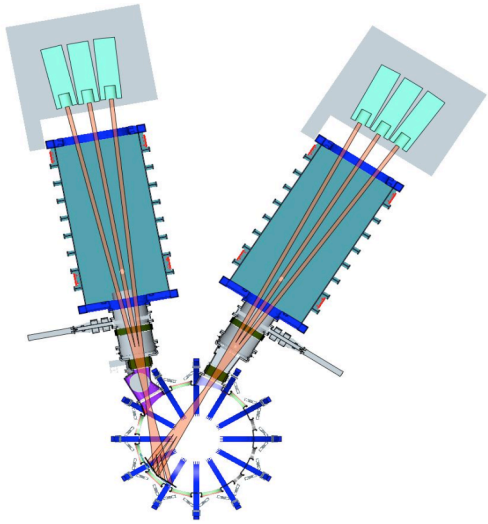
Centerstack Upgrade Design

- Focused on the selected TF joint design
- Analysis continues in several areas
- Overall Peer Review by August 15th



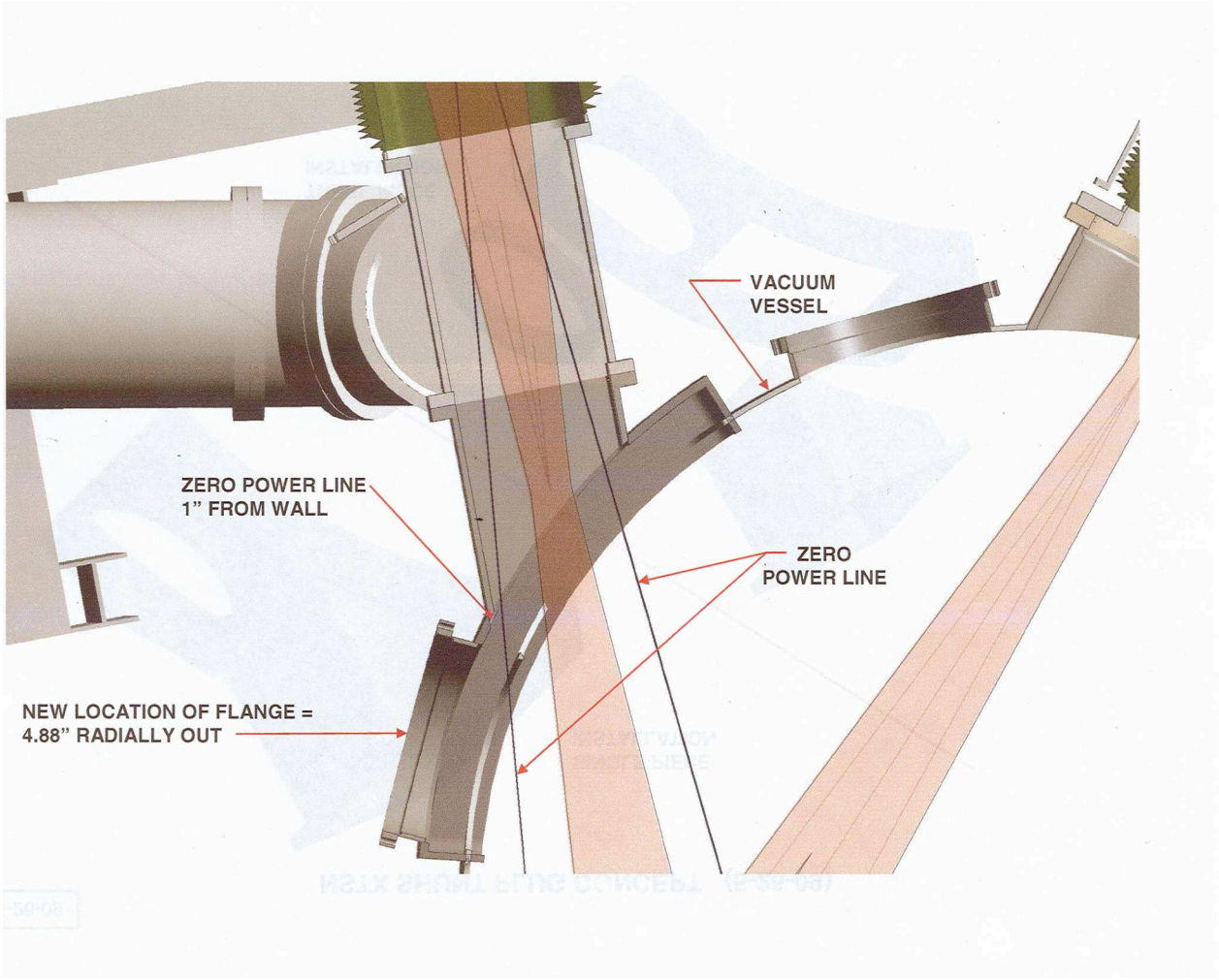
Second Neutral Beam Technical Risks

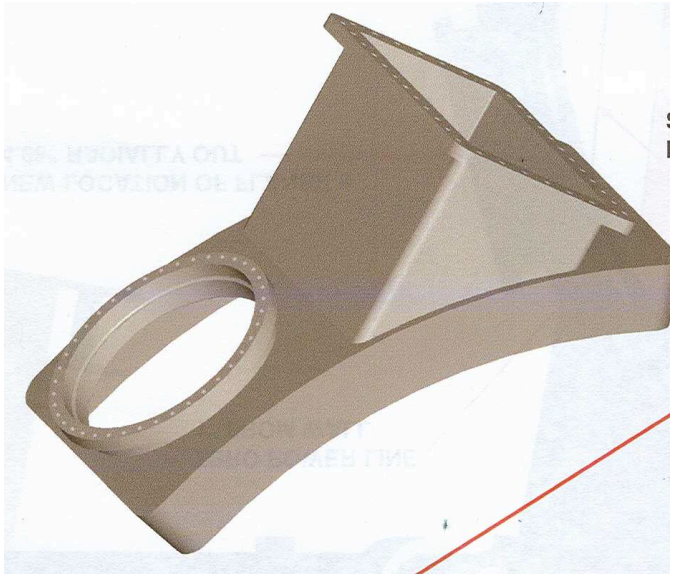
- Risk: Uncertain of the level of effort required to decontaminate.
  - Decontamination has begun with pumps and purges of the beamline and decon of the calorimeter.
  - Decontamination techniques were well tested during the TFTR D&D project
  - Contamination levels in NB4 (5,000 dpm) are well below that routinely encountered during the maintenance of TFTR NB sources (100,000 to 350,000 dpm).
  - Plan includes replacing all beam impinged copper surfaces to reduce schedule risk



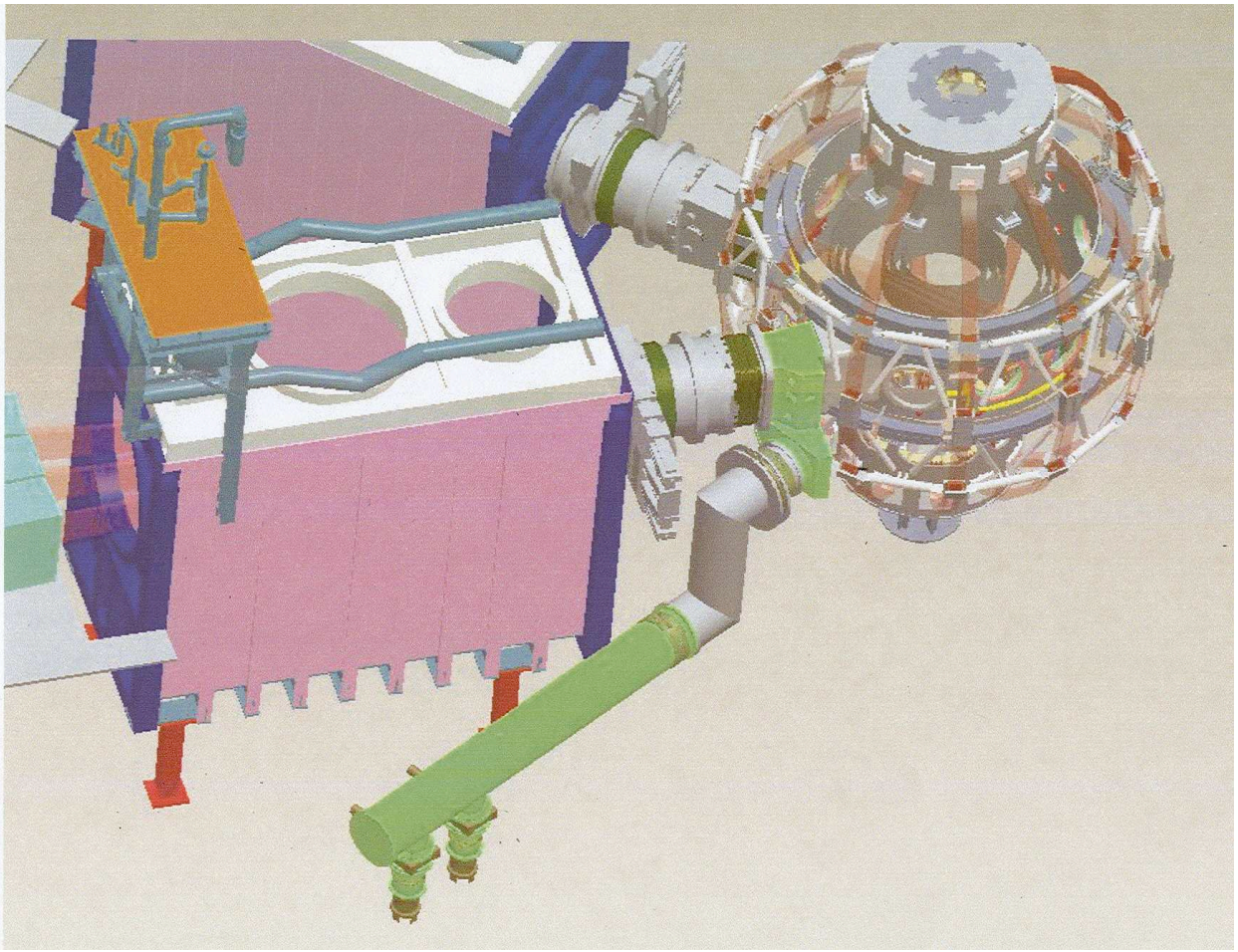
- Risk: Uncertainty in the commercial availability of High Voltage Switch-Tubes, cabling and terminations for the 100kV Accelerator System.
  - There are sufficient High Voltage Switch Tubes available on site to support a second NB on NSTX
  - Contact with vendors has confirmed that the triax cables and connectors are still available.

NB2 to Vacuum Vessel Interface

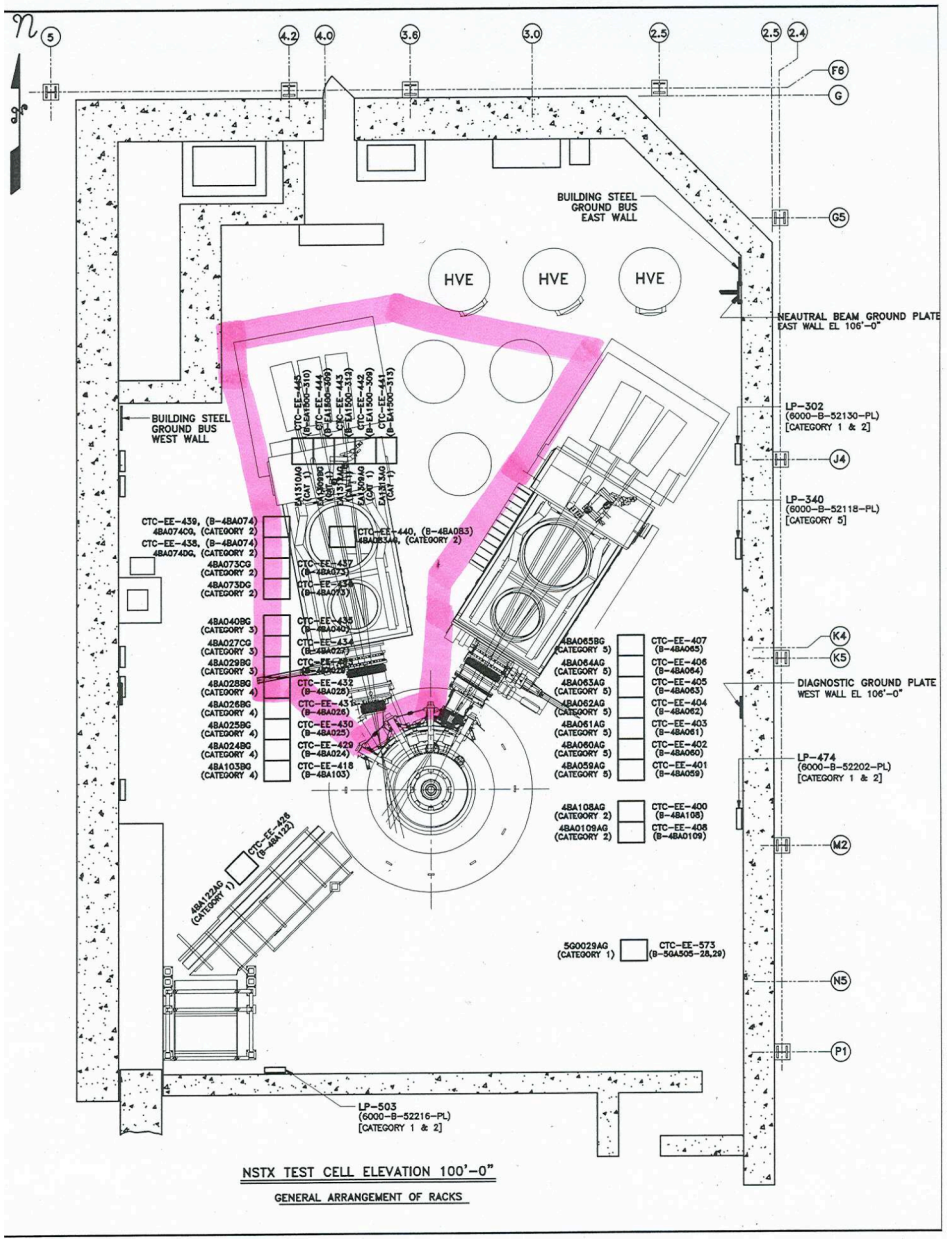


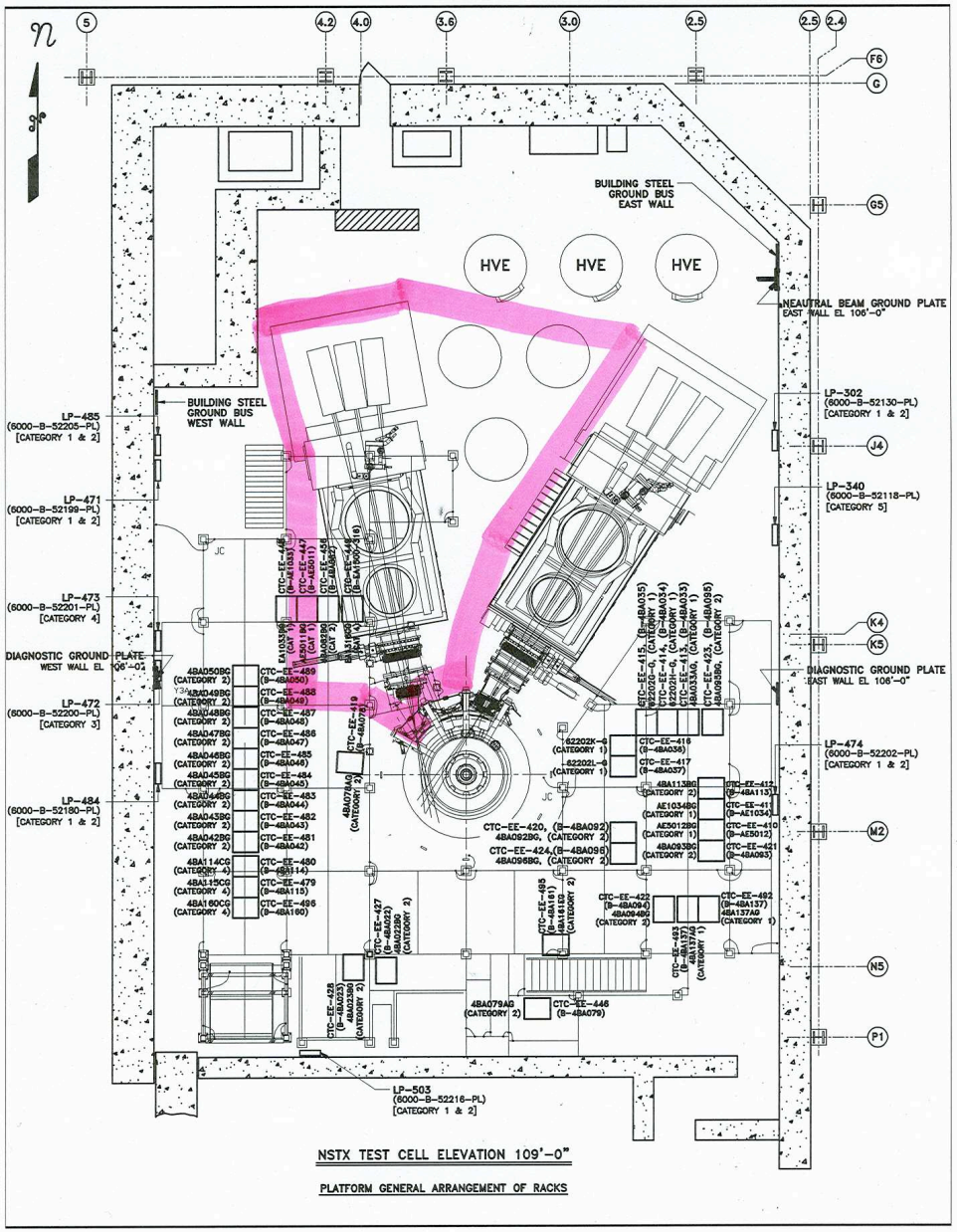


NB2 to Vacuum Vessel Interface



Removals to Accommodate NB2





Summary

- A detailed resource loaded schedule has been developed for tasks up to CD-1. A complete project resource loaded schedule will be completed for the CDR.
  - Bi-weekly statusing meetings are being held to identify issues and their corrective actions
  - Budget requirements for Project are same as presented for CD-0 … will update at CDR
    - $9-11M in FY10; $12-15M in FY11; $24-30M in FY12; $19-28M in FY13
- Design is well underway for both the new centerstack and the second neutral beam
- We are making good progress toward CD-1
  - CDR in October
  - Lehman (SC) Review in December (Lehman not available in November)
  - CD-1 ready by December
- We are already reducing risk
  - TF joint design down selection completed
  - Vacuum vessel and TF structural supports are easier than expected
  - Neutral Beam decontamination is progressing very well
  - Neutral Beam Peer Review was successful