

NSTX

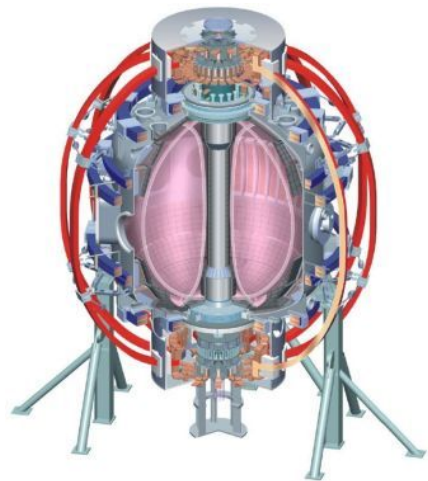
Supported by

NSTX TF Update

Columbia U
CompX
General Atomics
FIU
INL
Johns Hopkins U
LANL
LLNL
Lodestar
MIT
Nova Photonics
New York U
ORNL
PPPL
Princeton U
Purdue U
SNL
Think Tank, Inc.
UC Davis
UC Irvine
UCLA
UCSD
U Colorado
U Illinois
U Maryland
U Rochester
U Washington
U Wisconsin

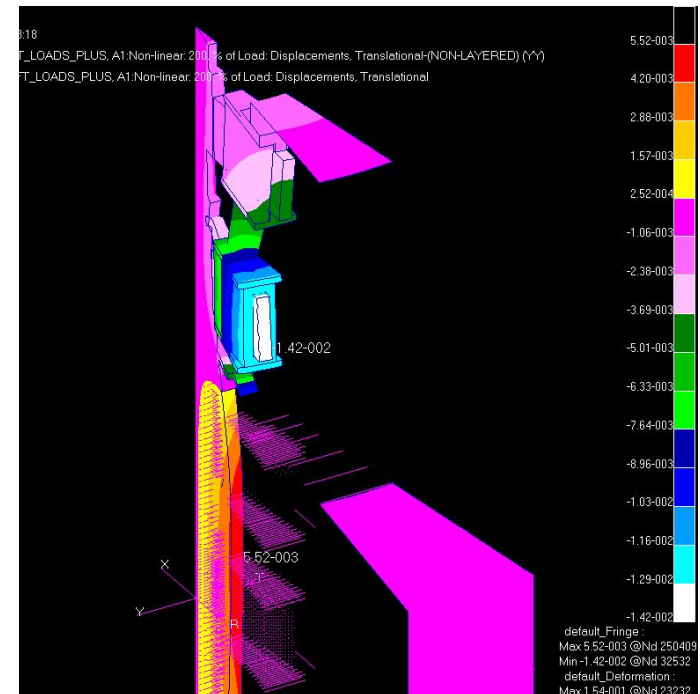
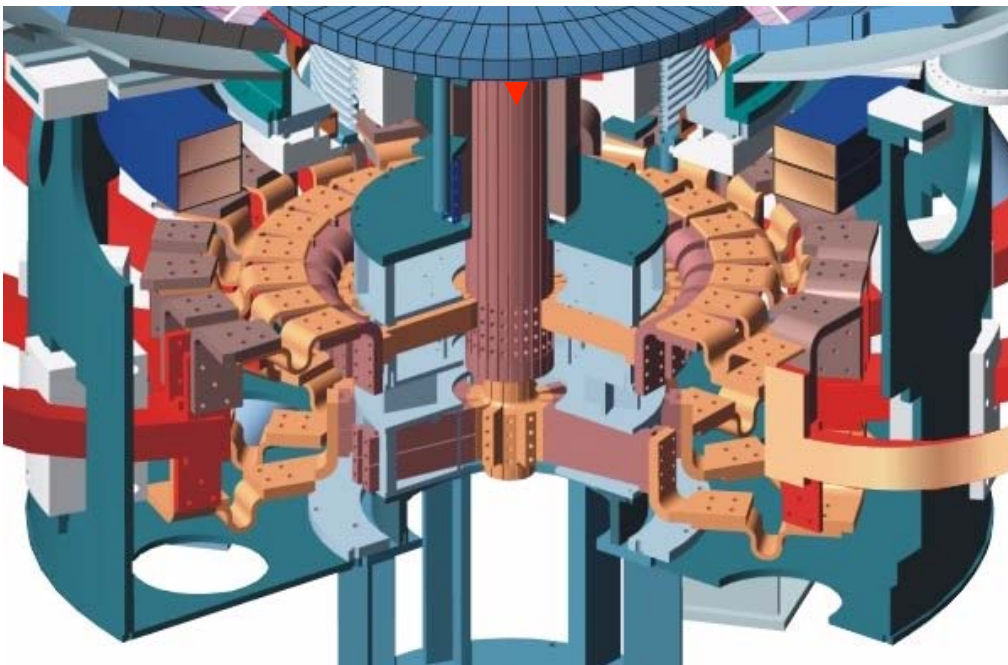
Culham Sci Ctr
U St. Andrews
York U
Chubu U
Fukui U
Hiroshima U
Hyogo U
Kyoto U
Kyushu U
Kyushu Tokai U
NIFS
Niigata U
U Tokyo
JAEA
Hebrew U
Ioffe Inst
RRC Kurchatov Inst
TRINITI
NFRI
KAIST
POSTECH
ASIPP
ENEA, Frascati
CEA, Cadarache
IPP, Jülich
IPP, Garching
ASCR, Czech Rep

Team Meeting
August 15, 2011

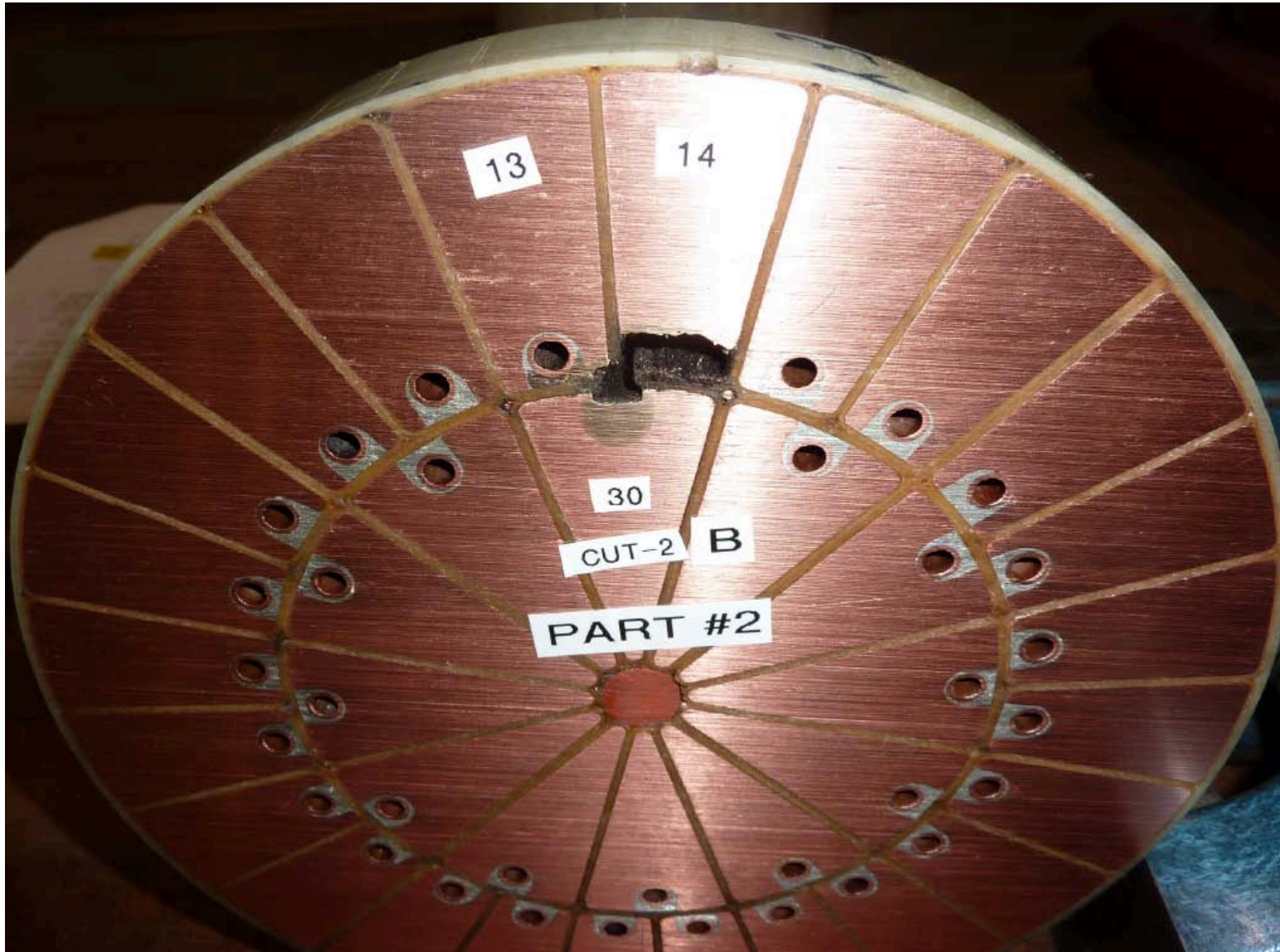


TF Bundle Dissection Performed

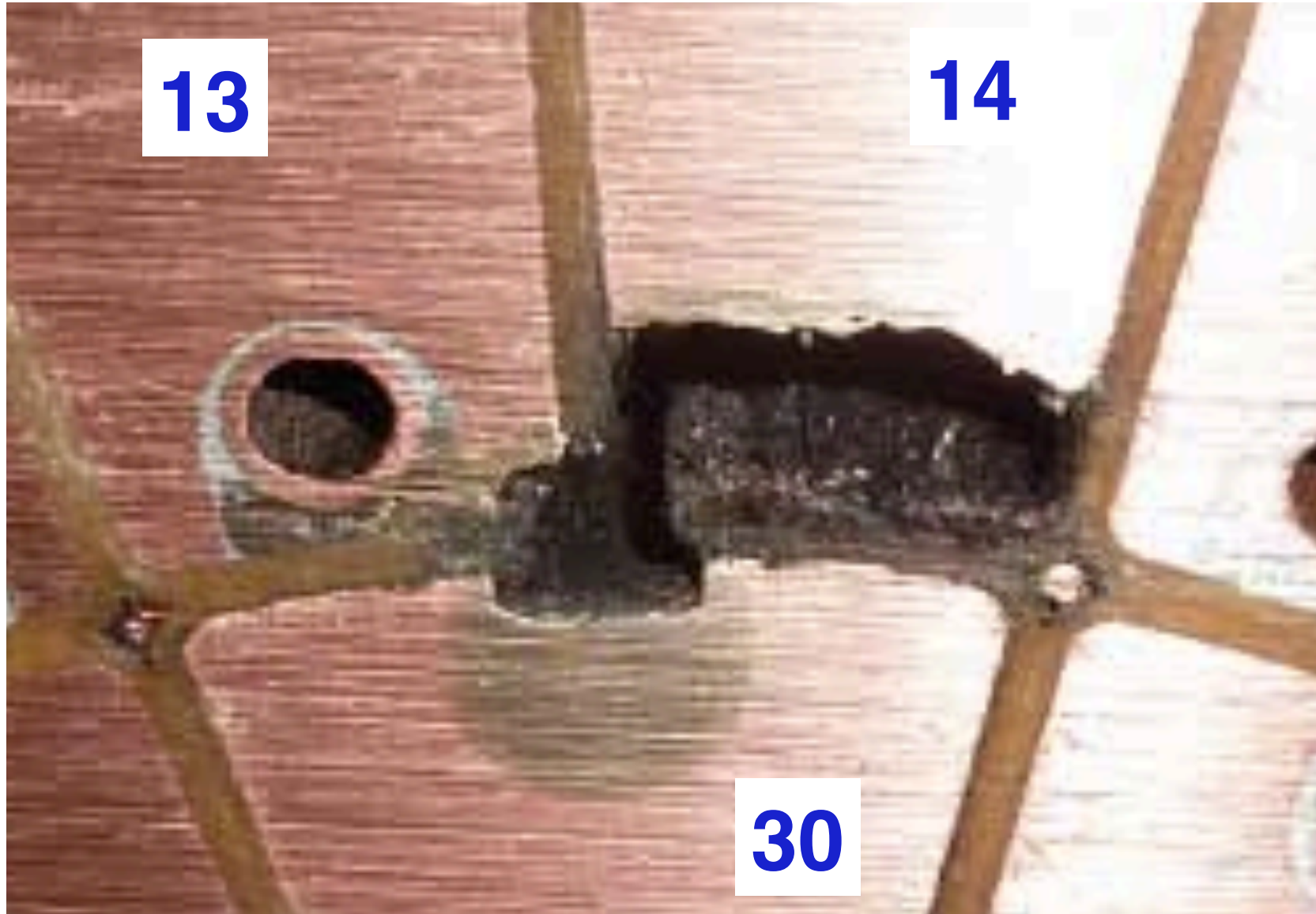
- TF bundle short involving TF # 13, 14 and 30 was measured to be ~ 2 feet from the bottom, eliminating a quick repair possibility.
- Replacement conductors available if the bundle rebuilding is needed.
- TF bundle dissection performed on August 11 – 12, 2011.
- Significant localized arc damage involving TF # 13, 14 and 30 copper conductors, water cooling tubes, and insulation found confirming the initial assessment.



TF Bundle Dissection Performed on August 11-12, 2011



TF Bundle Dissection



TF Bundle Dissection

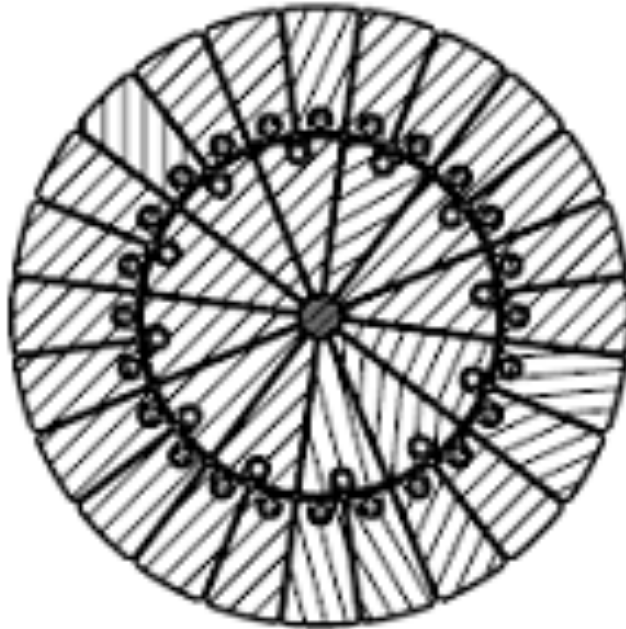


#1 priority is to find the cause of the fault

- **Dissection of the TF bundle together with analyses providing valuable information**
 - It appears that the fault primarily involved the cooling tubes in TF # 14 and TF #30.
 - The overall bundle appears to be in a good condition outside of the arced region. No obvious sign of defects nor deterioration.
 - Stress analyses of the bundle are performed in parallel
- **An external team of experts are being invited to advise on the TF fault and the TF Upgrade Design once sufficient information is gathered.**
 - The review to take place after the Labor Day.
 - The experts are being contacted.
 - Relevant information will be sent prior to the meeting.
 - Assure that the upgraded TF design reflecting what we learned.

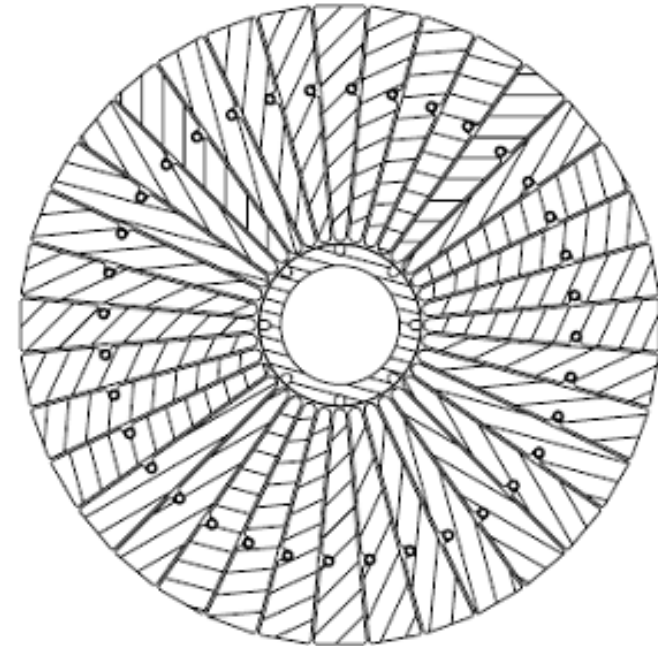
Upgraded TF Have Much Improved Design

Present TF bundle
(Diameter is $\sim \frac{1}{2}$ of the Upgrade TF)



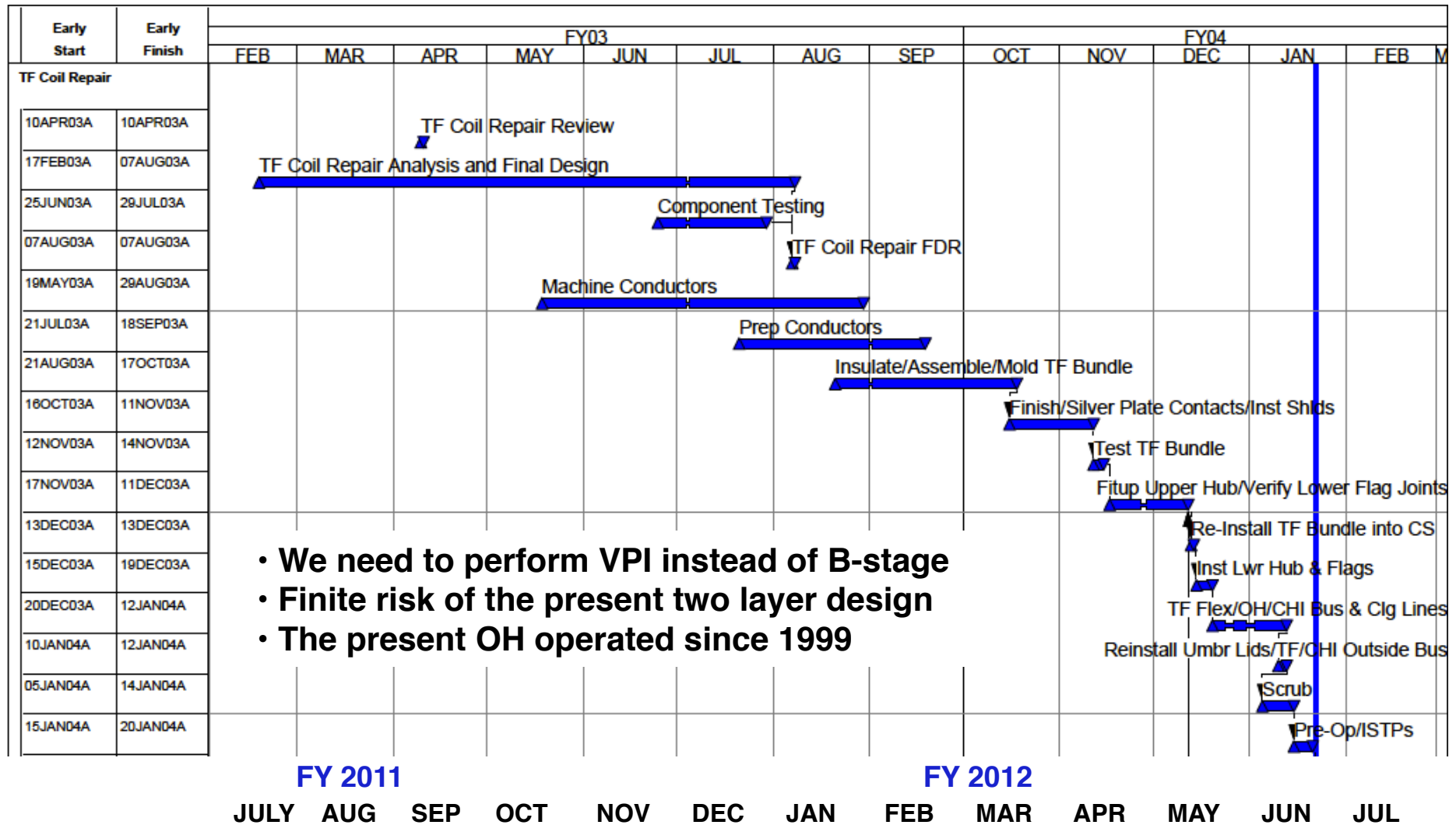
- **Complicated two layer design**
- **Complicated cooling water path**
- **3/16" refrigeration cooling tube**
- **B-stage insulation**

Upgraded TF bundle



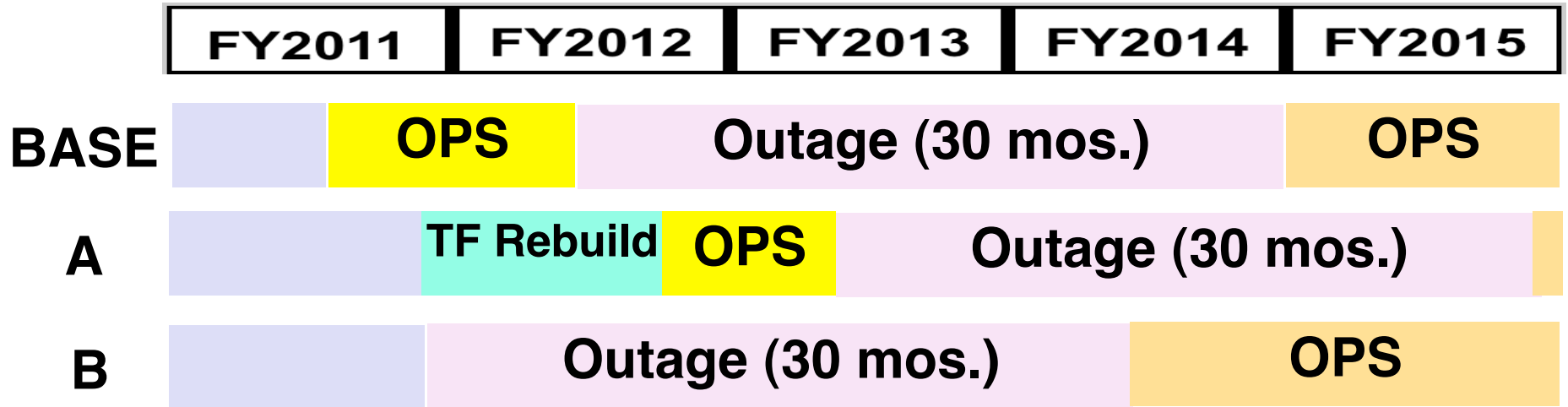
- **Identical simple conductors**
- **Simple straight cooling water path**
- **3/8" K-type straight copper tube**
- **More robust VPI insulation**

The TF Repair Will Not Be Quick Likely To Require ~ 10 Months



Comparison of Plan A & B

Assuming the same budget assumptions



	Pre-U Op	Post-U Op	Total Op
BASE	8 months	12 months	20 months
A	7 months	2 months	9 months
B	0	19 months	19 months

Plan B appears to be a longer term win but with a shorter term pain