



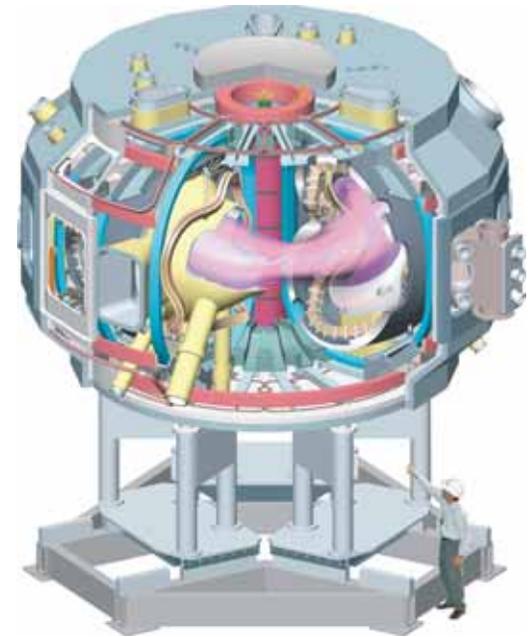
**SC Project Review**  
of the  
National **Compact Stellarator Experiment**  
at **PPPL**

DOE Federal Project Director  
Princeton Site Office

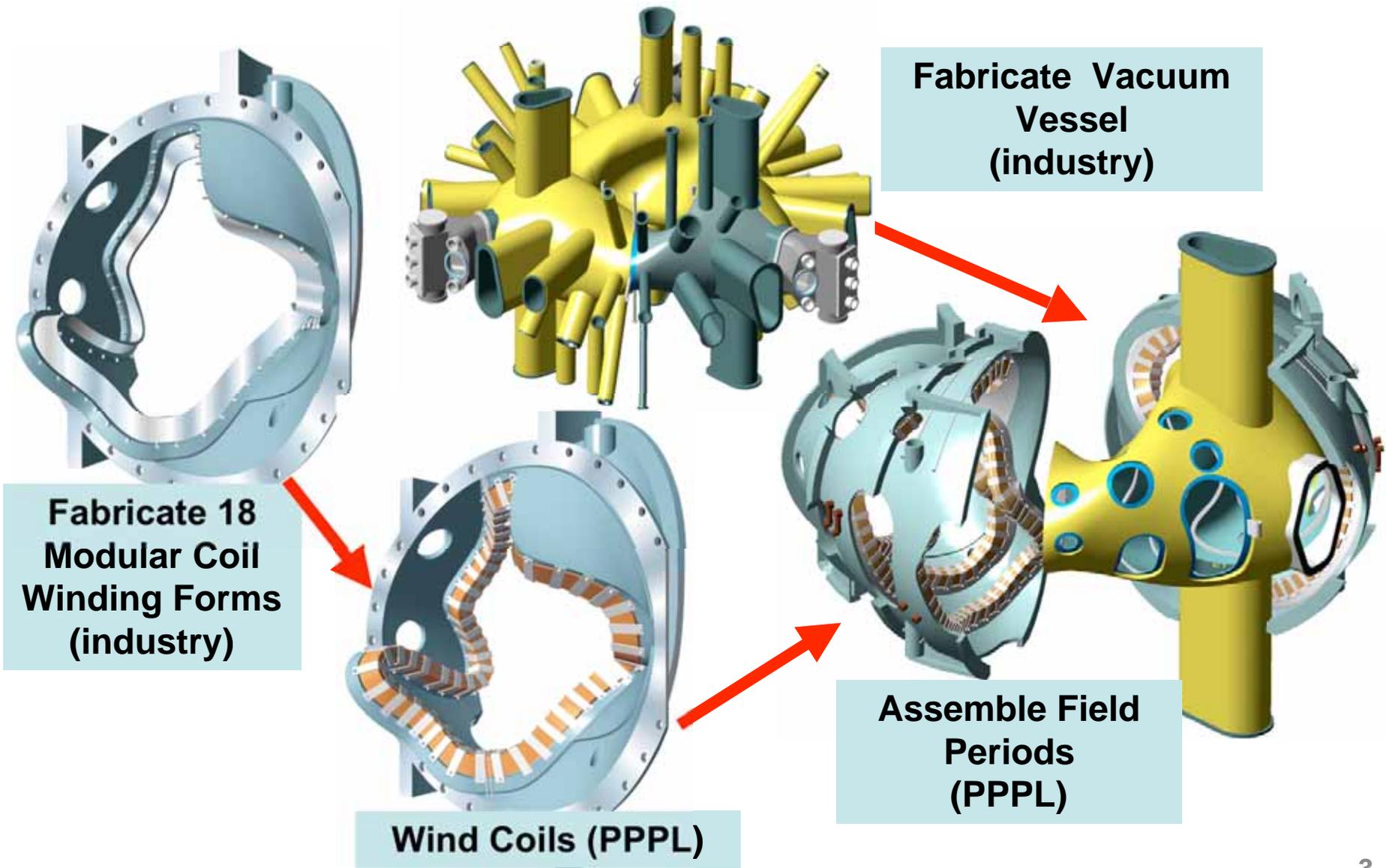
November, 2005

## ***Briefing Summary***

- Progress & critical milestones
- Performance (vendor & laboratory)
- Risk assessment
- Contingency status
- Safety management
- FPD assessment...
  - *Complexities of NCSX are a challenge*
  - *Moving forward – need the pace to improve*



# The Basic NCSX Device Concept is Challenging



## **There is much positive news to report....**

- ✓ The project team is working hard to achieve success
- ✓ The vendors are increasing their production rate
- ✓ Quality of vendor production units is high
- ✓ PPPL teams are “ready to wind” coils
- ✓ Safety record is excellent
- ✓ S2 approved the new baseline in July
- ✓ Current workplans support required outcomes

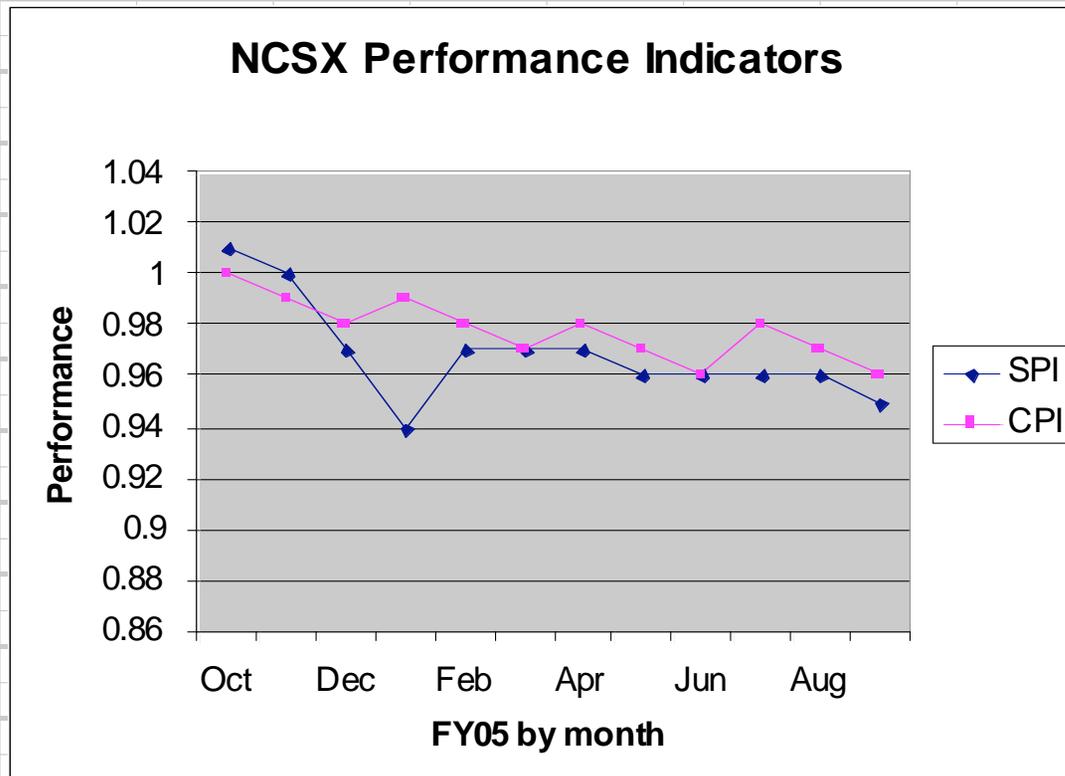
## ***NCSX Major Production Milestones***

<u>MILESTONE</u>	<u>Level 2</u>	<u>Level 3</u>
• Begin TF Coil Fabrication Prep	Sep, 2005 (6/2005)	
• First Modular Coil Winding Form Delivered	July, 2005 (10/2005)	
• Complete Winding of 1st Modular Coil		December, 2005
• Complete Production of 1st Modular Coil	March, 2006	
• Complete Type B winding design		April, 2006
• Vacuum Vessel Sectors Delivered	May, 2006	
• Delivery of Last Modular Coil Winding Form		December, 2006
• Complete Production of 6 Modular Coils		January, 2007
• Last Modular Coil Winding Form Delivered	June, 2007	
• Complete Production of 9 TF Coils		June, 2007
• Begin Assembly of First Field Period	July, 2007	
• Assemble 1st Modular Coil Subassembly		January, 2008
• Award Subcontract for PF Coil Production	March, 2008	
• Complete Production of All Modular Coils		May, 2008
• Complete Production of All TF Coils	November, 2008	
• Delivery of Last PF Coil		November, 2008
• Complete Assembly of Last Field Period	November, 2008	

( ) denotes actual date

# Project Performance

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
SPI	1.01	1	0.97	0.94	0.97	0.97	0.97	0.96	0.96	0.96	0.96	0.95
CPI	1	0.99	0.98	0.99	0.98	0.97	0.98	0.97	0.96	0.98	0.97	0.96



## ***Near-Term Risk Assessment***

- **Technical** – Nine MCWF castings poured and in production (6C, 3A)  
There will be similar learning curve issues on A & B castings.  
VVSA production rate improving.  
Modular coil winding has begun.  
Assembly will also be challenging
  
- **Cost** -- Unrecoverable cost variances **(\$1.5M)**  
Modular coil winding design and production cost estimates are low **(\$1.5M)**.  
TF Production costs are growing **(\$1M)**
  
- **Schedule** – MCWF production time still the pacing item.  
***Vendor deliveries experiencing significant delays, but 1<sup>st</sup> MCWF has been delivered.***
  
- **Management** – Next Lehman review May, 2006.  
S2 approval of new baseline July, 2005.



## ***Integrated Safety Management***

- ✓ The project has maintained an exemplary safety record to date.
- ✓ Safety reviews continue to be completed prior to initiation of new project fabrication activities. Both DOE and PPPL personnel participate in the reviews.
- ✓ PPPL hosted a lab-wide safety meeting in February, 2005. SC Electrical Safety review held at PPPL March 14 to 18. PPPL program described as a “model” for SC labs.

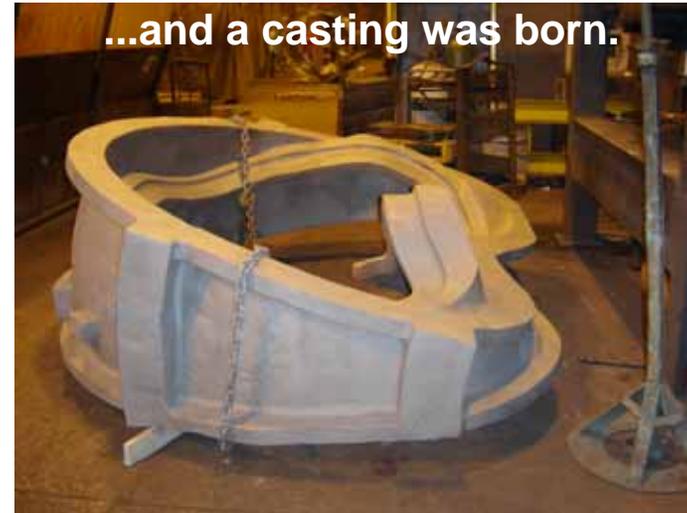
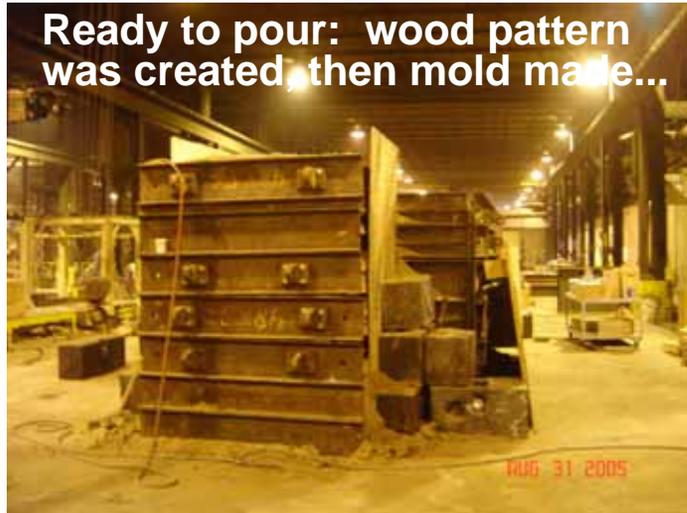
## ***FPD Comments on the Charge . . .***

- 1.** Vendor performance . . .  
*improving – need consistent deliveries*
  
- 2.** Risk management . . .  
*pro-active risk management strategy*  
*critical issues list*
  
- 3.** Cost, schedule, contingency management . . .  
*schedule has been “squeezed” by late deliveries*  
*contingency ~20% with risky work still ahead*  
*ECP – we’d like your view of the proposal*
  
- 4.** Make or buy assessment . . .  
*costs have increased – but bids also high*
  
- 5.** IPT & Project staffing . . .  
*doing a good job of managing a complex endeavor*

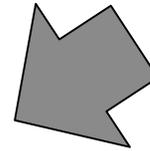
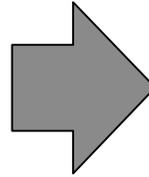
## ***FPD Summary Assessment***

- NCSX is at the crossroads.....
- Significant subcontract awards are in place, and production activities underway. MCWF vendor has finally delivered first production unit.
- Project staff & management are functioning well.
- Production pace *must* improve.
- New baseline approved July, 2005. Re-planning of FY06 work is underway.

# Modular Coil Winding Form



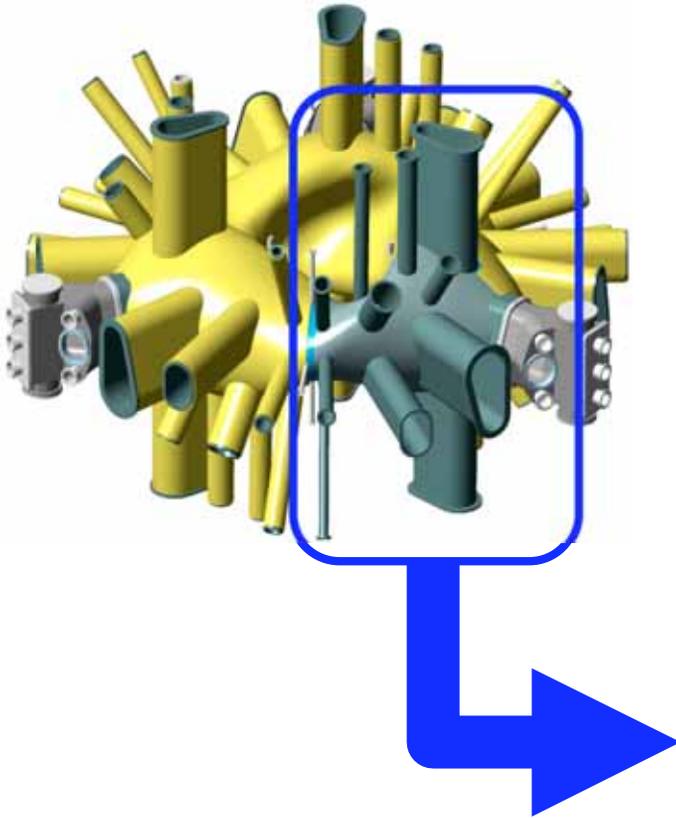
## Winding Form (continued)



**Winding has begun!**

## Vacuum Vessel

- 1 of 3 periods shown
- Each period has 20 panels that are formed & welded together



- Diagnostic ports to be added
- 1<sup>st</sup> period to be delivered Early 2006

