

## NCSX Work Approval Form (WAF)

**WBS Number: 85**

**WBS Title: Integrated Systems Testing**

**Job Number: 8501**

**Job Title: Integrated Systems Testing**

**Job Manager: Charlie Gentile**

**Description:**

This WBS (85) covers the planning, document preparation, and execution of the NCSX integrated system testing and startup activities, culminating in First Plasma

**Schedule:**

See Attached

**Approvals:**

\_\_\_\_\_

Job Manager

\_\_\_\_\_

Date

\_\_\_\_\_

Responsible Line Manager

\_\_\_\_\_

Date

\_\_\_\_\_

Project Manager

\_\_\_\_\_

Date

\_\_\_\_\_

Engineering Department Head

\_\_\_\_\_

Date

NCSX June 2007 ETC  
TABLE I - Design Labor

WBS Number: 85  
WBS Title: Integrated Systems Testing  
Job Number: 8501  
Job Title: Integrated Systems Testing  
Job Manager: Charlie Gentile

Task ID	TASK DESCRIPTION	FY07\$K																		
		41 MS	48 MS	37 STK	35 TRVL	31 OT	EM EM	EM SM	EM SB	EM TB	EA EM	EA SB	EE EM	EE SM	EE SB	EE TB	EC EM	EC SB	EC TB	RM2
							155.5	120.6	108.4	78.33	80.8	11	169.3	130.6	135	78.9	144.9	93.7	71	162.3
	<b>Documentation</b>																			
	1.0 fte Engineer	28.5					1140													
	1.0 fte Senior L&S	28.5					1140													
	<b>Startup</b>																			
	1.0 Test director/physicist in charge (PIC) @100%	10																		400
	1.0 Chief Operations Engineer (COE) @85%	10					340													
	1.0 Project Engineer (wayne already at 75% in w/	10								100										
	2.0 Machine technicians @ 85%	10							680											
	1.0 FCPC Tech @75%	10										300								
	1.0 Cryo sysw tech @75%	10								300										
	1.0 AC power Engr @75%	10										300								
	1.0 Computer Engr @75%	10															300			
31			0	0	0	0	1480	1140	680	300	100	0	300	300	0	0	300	0	0	400

**Basis of Estimate**  
These estimates are based on a CD-4 Startup Plan (dated April 2007) - The purpose of this Startup Plan is to identify those tasks, documents, actions, and reviews required for meeting the requirements of Critical Decision 4 (CD-4), NCSX First Plasma.

Based on TFTR & NSTX experience & existing S/U documentation  
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TABLE I - Materials and Subcontracts

<b>WBS Number: 85</b>													
<b>WBS Title: Integrated Systems Testing</b>													
<b>Job Number: 8501</b>													
<b>Job Title: Integrated Systems Testing</b>													
<b>Job Manager: Charlie Gentile</b>													
Description:													
<b>None - all labor.</b>													

NCSX June 2007 ETC  
TABLE III - Fabrication and Assembly

<b>WBS Number: 85</b>																	
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<b>Fabrication and Assembly</b>																	

**NCSX June 2007 ETC**  
**TABLE IV - Uncertainty of Estimate and Residual Risk Assessment**

**WBS Number: 85**  
**WBS Title: Integrated Systems Testing**  
**Job Number: 8501**  
**Job Title: Integrated Systems Testing**  
**Job Manager: Charlie Gentile**

**Uncertainty of the Estimate**

	<u>High</u>	<u>Medium</u>	<u>Low</u>	<u>Uncertainty Range (%)</u>	<u>Comments/Other Considerations</u>
Design Maturity	X			-5%/+10%	LOE effort dependent on length of schedule
Design Complexity			X		No special assignments

**Note: High/Medium/Low uncertainty assessment from Job Manager. Uncertainty range based on ACEI recommended practice 18R-97 as amended for NCSX.**

**Residual Impacts**

Job	Risk Description	Likelihood of Occurring	Mitigation Plan	Basis of estimate	Cost Impact		Schedule Impact	
					Low	High	Low	High
8501	Coils are hooked up with incorrect polarity	U	Tested during ISTP and fixed	Covered in estimate uncertainty with present mitigation plan				

**Notes:**

- [1] Low cost and schedule impacts are considered the minimum (0-percentile) impacts should the event occur.  
High cost and schedule impacts are considered the maximum (100-percentile) impacts should the event occur
- [2] Cost impacts should be entered as man-hours (by demographic) and M&S direct cost under basis of estimate.  
Cost impacts should NOT include standing army costs which are separately calculated from the schedule impact  
Project control is responsible for quantifying the low and high cost impacts based on the labor hours and M&S identified
- [3] The schedule impacts should be entered as the min and max impacts on the critical path.  
If there is no critical path impact then the schedule entries should be zero.
- [4] Likelihood of occurrence should be entered consistent with our risk classification methodology, i.e.  
VL= Very Likely (P>80%), L=Likely (80%>P>40%), U=Unlikley (40%>P>10%), VU=Very Unlikley (P<10%), NC=Non-credible (P<1%)