

NCSX Work Approval Form (WAF)

WBS Number: 54

WBS Title: Facility Timing & Synchronization Systems

Job Number: 5401

Job Title: Data Acquisition & Facility Computing Systems

Job Manager: Paul Sichta

Description:

The Facility Timing and Synchronization System will provide up to 256 preprogrammed events triggers to define the NCSX shot cycle. These systems will utilize a new timing and synchronization technology since the old CAMAC-based TFTR Timing System will not be adequate for NCSX. It is anticipated that this new system will include a 10 MHZ time base and an off-the-shelf or existing solution.

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: 54													
WBS Title: Facility Timing & Synchronization Systems													
Job Number: 5401													
Job Title: Data Acquisition & Facility Computing Systems													
Job Manager: Paul Sichta													
Description:													
<i>Title I and</i>													
FY07\$K													
Activity ID	Activity Description	41MS	43MS/CC	48MS	37STK	35TRVL	ECEM	ECTB	EMTB	EASB	EEEM	EETB	Basis of Estimate
													Originally manhours estimate based on NSTX experience. However, this estimate has been updated to reflect experience of experience on other similar networking installation projects.
54-10	Preliminary System Design						40						
54-20	Final SystemDesign						40						
54-30	Preliminary Design - Clock Dist.						20				40		
54-40	Final Design - Clock Dist.						20				120		
54-50	Test - Clock Dist.						20				100	120	
54-60	Procurement	\$16K	\$14K		\$4K		40						
54-70	UNT - Timing & Seq Emulation (FPGA Pgm)							160					
54-80	UNT - Device Driver Prog (EPICS/MDSplus)						160						
54-90	Central Clock (EPICS) Programming						80						
54-100	Installation						40	80	120	40			
54-110	Test						40	40					
Subtotal Job 5401		\$16K	\$14K	\$0K	\$4K	\$0K	500	280	120	40	260	120	

NCSX June 2007 ETC
TABLE II - Materials and Subcontracts

WBS Number: 54							
WBS Title: Facility Timing & Synchronization Systems							
Job Number: 5401							
Job Title: Data Acquisition & Facility Computing Systems							
Job Manager: Paul Sichta							
Materials and Subcontracts (M&S)						Basis of Estimate	
Description:							
See Table I							

NCSX June 2007 ETC
TABLE III - Fabrication/Assembly Installation

WBS Number: 54										
WBS Title: Facility Timing & Synchronization Systems										
Job Number: 5401										
Job Title: Data Acquisition & Facility Computing Systems										
Job Manager: Paul Sichta										
In-house Fabrication and Assembly and Installation										
See Table I										

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

WBS Number: 54													
WBS Title: Facility Timing & Synchronization Systems													
Job Number: 5401													
Job Title: Data Acquisition & Facility Computing Systems													
Job Manager: Paul Sichta													
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			Although PDR, some more design needed to finalize.						
	Design Complexity			X		-15%/+25%	Duplication of NSTX architecture						
Note: High/Medium/Low uncertainty assessment from Job Manager. Uncertainty range based on ACEI recommended practice 18R-97 as amended for NCSX.													
Residual Impacts													
								Cost Impact		Schedule Impact			
Job	Risk Description					Likelihood of Occurring	Mitigation Plan	Basis of estimate		Low	High	Low	High
NONE													
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=Unlikely (40%>P>10%), VU=Very Unlikely (P<10%), NC=Non-credible (P<1%)												