

NCSX Work Approval Form (WAF)

WBS Number: 56

WBS Title: Central Safety Interlock Systems

Job Number: 5601

Job Title: Central Safety Interlock Systems

Job Manager: Paul Sichta

Description:

The Central Safety Interlock System will provide system-wide coordination of personnel and hardware interlocks. Its primary man machine interface will be EPICS. The Central Safety Interlock System will be a fail-safe, hybrid system. Mechanical components and hardwired devices will provide primary protective functions. Each NCSX high-energy subsystem will interface with the Central Safety Interlock System. An access control system will be incorporated to grant access to the Test Cell for only authorized/trained personnel. UPS and Standby power will be used for critical components.

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: 56													
WBS Title: Central Safety Interlock Systems													
Job Number: 5601													
Job Title: Central Safety Interlock 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
We need to know what you are buying, the basis of that estimate, & the basis of your labor hours													
56-10	Requirements, Codes&Standards						40						
56-20	Preliminary Design						40						
56-30	PLC Training		\$2K			\$2K	80						
56-40	Final Design						140						
56-40	Procurement	\$20K	\$12K		\$8K		40						
56-50	PLC Programming						120						
56-60	Installation						60	80	480	240			
56-70	Test						80	40					
Subtotal Job 5601		\$20K	\$14K	\$0K	\$8K	\$2K	600	120	480	240	0	0	

NCSX June 2007 ETC
TABLE II - Materials and Subcontracts

WBS Number: 56							
WBS Title: Central Safety Interlock Systems							
Job Number: 5601							
Job Title: Central Safety Interlock 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: 56										
WBS Title: Central Safety Interlock Systems										
Job Number: 5601										
Job Title: Central Safety Interlock 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: 56													
WBS Title: Central Safety Interlock Systems													
Job Number: 5601													
Job Title: Central Safety Interlock 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		First-of-a-Kind at PPPL, although certainly in main stream of industry						
	Design Complexity				X	-15%/+25%	Very preliminary M&S estimates off web - need price quote from vendors						
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%)												