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

Date

Engineering Department Head

NCSX June 2007 ETC TABLE I - DESIGN LABOR

WBS N	lumber: 56												
WBS T	itle: Central Safety Interlo	ock Syst	ems										
loh Ni	ımber: 5601	on cycl	JJ										
JOD NU	umber. 300 i	sta Garada											
זוו מסע	tle: Central Safety Interloc	ск буѕте	ms										
Job Ma	anager: Paul Sichta												
Descripti	on:												
Title I and													
.6.6							FY07\$K						
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		1MS	3MS/CC	48MS	37STK	STRVL	ECEM	ECTB	EMTB	ASB	EEEM	EETB	
Activity ID	Activity Description	41	4	4	37	36	Ш	Ш	Ш	Щ	Ш	Ш	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						
	PLC Training		\$2K			\$2K	80						
	Final Design						140						
	Procurement	\$20K	\$12K		\$8K		40						
	PLC Programming						120						
	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
Materials and Subcontracts (M&S) Description:	Basis of Estimate
,	Basis of Estimate
Description:	Basis of Estimate
Description:	Basis of Estimate

NCSX June 2007 ETC TABLE III - Fabrication/Assembly Installation

WBS Number: 56					
WBS Title: Central Safety Interlo	ck Systems				
Job Number: 5601					
Job Title: Central Safety Interloc	k Systems				
Job Manager: Paul Sichta					
In-house Fabrication and Assembly a	nd Installation				
See Table I					

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

WB	S Number: 56											
1	S Title: Central Safety Interlock Sy	stems										
	Number: 5601											
		1										
Job	Title: Central Safety Interlock Sys	tems										
Job	Manager: Paul Sichta											
Hnce	rtainty of the Estimate											
Once	rtainty of the Estimate			Uncertainty								
	High	Medium	Low	Range (%)				Co	mments/O	ther Cons	iderations	
	Design Maturity		X		First-of-a-	Kind at PPPL, although c	ertainly in					
	, i			-15%/+25%								
	Design Complexity		Х		Very preli	minary M&S estimates of	web - nee	ed price qu	ote from v	endors		
Note:	High/Medium/Low uncertainty assessment from Job M	anager. Un	certainty rar	nge based on A	ACEI recor	nmended practice 18R-97	as ameno	led for NC	SX.			
Residi	ual Impacts											
rtooiat	adi impasto											
									Cost	mpact	Schedule	Impact
				Likelihood of					Cost I	mpact	Schedule	Impact
Job	Risk Description			Likelihood of Occurring	Mitig	ation Plan Bas	sis of estir	nate	Cost I	mpact High	Schedule Low	Impact High
					Mitig	ation Plan Bas	sis of estir	nate				,
Job NONE					Mitig	ation Plan Bas	sis of estir	nate				,
					Mitig	ation Plan Bas	sis of estin	nate				,
					Mitig	ation Plan Bas	sis of estin	nate				,
NONE					Mitig	ation Plan Bas	sis of estir	nate				,
		nimum (0-r	percentile) in	Occurring			sis of estir	nate				,
NONE Notes:				Occurring pacts should to	he event o	ccur.	sis of estir	nate				,
NONE Notes:	Low cost and schedule impacts are considered the milliph cost and schedule impacts are considered the milliph cost impacts should be entered as man-hours (by der	aximum (10 nographic)	00-percentile	Occurring npacts should to impacts should to impacts should to rect cost under	he event o	ccur. nt occur stimate.	sis of estir	nate				,
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Activity ID	MILE- stones	Activity	Duration (work	Baseline Start	Baseline Finish	Shifts	Total Float	%	Proposed Budgeted							_			_						
	(level 2	Description	days	Start	Finish		Float	cmplt	Budgeted	FY07	FY	FY08 FY09				FY10			<u> </u>	FY11			FY12		
	` & 3)																						Ш		
56 - Cent	ral Sa	afety and Interlock Systems																							
		Safety &Interlock Sys-SICHTA																							
R56-10		Requirements, Codes&Standards	60	01JUN09*	24AUG09		39		6,203.60							EC//I	EM =	40hr	;						
R56-20		Preliminary Design	30	25AUG09	06OCT09		39		6,231.71						[DEC	//EM	=40h	nr;						
R56-21		PDR	0		06OCT09		39		0.00						1	∇									
R56-30		PLC Training	60	07OCT09	12JAN10		159		15,374.80								HEC/ 35=	/EM = 02\$k	=80hr :	; 43	=02	;			
R56-35		Final Design	30	07OCT09	17NOV09		39		22,450.40									M =1							
R56-36		FDR	0		17NOV09		39		0.00								7								
R56-40		Procurement	60	18NOV09	23FEB10		39		49,062.40								E0	C//EM 8=12	1 =40 : 41:	hr ; 3 =20\$l	7=08 k ;	;			
R56-50		PLC Programming	90	24FEB10	30JUN10		39		19,243.20									EC							
R56-60		Installation	70	24FEB10	02JUN10		59		87,412.00		EC//EN EA//SE	1 =60h 3 =240	nr ; E)hr ; E	C//TI M//1	3 =80 B =4	0 ; 480h	, =								
R56-70	2	Test	30	01JUL10	12AUG10		39		15,947.20										EC//E	:M =8	80hr ;	EC//T	B =4		
Subtotal	İ		300	01JUN09	12AUG10		39		221,925.31	1					Щ		7	ш							