	NCSX Work Approval	Form (WAF)
WBS Num WBS Title: Job Numb Job Title: Job Mana(ber: 53 : Data Acquistion & Facility Computi er: 5301 Data Acquistion & Facility Computin ger: Paul Sichta	ng Systems g Systems
Description:		
	The Diagnostic Data Acquisition System we structure to catalog and manage experime analysis. The design will use the existing Macquisition, data archiving and display. Including acquisition hardware will be designed with st chassis.	vill provide a data management software ental results for subsequent retrieval and AIT developed MDSplus software for data dividual diagnostic local control and data andard PC architecture or in Compact PC
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 N	lumber: 53												
WBS T	itle: Data Acquistion & Fa	acility (Compu	ting Sy	stems								
Job Nu	umber: 5301	<u> </u>		~ /									
Job Tit	le: Data Acquistion & Fac	ality Co	omnuti	ina Svs	stems								
Job Ma	anager: Paul Sichta		ompau										
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Activity ID	Activity Description	12	13N	181	37S	35T	ü	E.	M	EAS		Ē	Basis of Estimate
		7	7	7				Ш	н		Ш		
													Originally manhours estimate based on NSTX experience.
													However, this estimate has been updated to reflect experience
53-10	Preliminary Design	1	1	İ			40						or experience on other similar networking installation projects.
53-20	Final Design						80						
53-30	Procurement	\$17.0K	\$3.0K		\$2.0K		20						
53-40	Installation							40					
53-50	MDSplus Installation						80						
53-60	MDSplus Programming - Tree Design						80						
53-70	MDSplus Programming - Shot Sync						80						
53-80	MDSplus Programming - Dispatcher						160						
53-90	MDSplus Programming - Acquisition						80						
53-110	Programming - Misc.						160	40					
53-120	Test						40	40		ļ			
	Subtotal Job 5301	\$17K	\$3K	\$0K	\$2K	SUK	820	80	0	0	0	0	
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	M&S Details:	K\$	+		i	Basis	of M&S Es	timate		å			
	Linux MDSplus Server	\$3.0K	Based on	recent pur	chased of	parts for N	STX and o	ther lab inf	rastructur	e projects			
	SAN - disk space (500 GB)	\$6.0K	Based on	recent pur	chased of	parts for N	STX and o	ther lab inf	rastructur	e projects			
	misc.	\$3.0K	Based on	recent pur	chased of	parts for N	STX and o	ther lab inf	rastructur	e projects			
	PC appl. TBD	\$10.0K	Based on	recent pur	chased of	parts for N	STX and o	ther lab inf	rastructur	e projects			
	Total M&S	\$22.0K		ļ			ļ			ļ			
				1									

NCSX June 2007 ETC TABLE II - Materials and Subcontracts

WBS Number: 53						
WBS Title: Data Acquistion & Facilit	y Compu	ting Syste	ms			
Job Number: 5301						
Job Title: Data Acquistion & Facility	Computi	ing System	าร			
Job Manager: Paul Sichta						
		1			1	<u> </u>
Materials and Subcontracts (M&S)					Bas	is of Estimate
Materials and Subcontracts (M&S) Description:					Bas	is of Estimate
Materials and Subcontracts (M&S) Description:					Bas	is of Estimate
Materials and Subcontracts (M&S) Description: See Table I					Bas	is of Estimate
Materials and Subcontracts (M&S) Description: See Table I					Bas	is of Estimate
Materials and Subcontracts (M&S) Description: See Table I					Bas	is of Estimate
Materials and Subcontracts (M&S) Description: See Table I					Bas	is of Estimate
Materials and Subcontracts (M&S) Description: See Table I					Bas	is of Estimate

NCSX June 2007 ETC TABLE III - Fabrication/Assembly Installation

WBS Number: 53						
WBS Title: Data Acquistion & Fa	cility Co	mput	ing Sy	ystems		
Job Number: 5301						
Job Title: Data Acquistion & Fac	ility Con	nputi	ng Sys	stems		
Job Manager: Paul Sichta						
			1			
In-house Fabrication and Assembly a	and Insta	llation				
See Table I						

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

WB\$	S Number: 53									
WB\$	S Title: Data A	cquistion & F	acility (Compu	ting Sys	stems				
Job	Number: 5301	•	-	-						
Job	Title: Data Ac	auistion & Fa	cility C	omputi	na Svst	ems				
Job	Manager: Pau	l Sichta			<u>-</u>					
Unco	rtainty of the Estim	ato								
Oncer		ale				Uncertainty				
			Hiah	Medium	Low	Range (%)	nments/Of	ther Consi	derations	
	Design Maturity			X		Although PDR, some more design needed to finalize.				
						-10%/+15%				
	Design Complexity				Х	Duplication of NSTX architecture				
Note:	High/Medium/Low unc	ertainty assessment	from Job Ma	anager. Un	certainty ran	ige based on AACEI recommended practice 18R-97 as amended for NCS	Χ.			
Decidu	al Impacts			1					1	
Residu	al impacts									
Residu							Cost I	mpact	Schedule	Impact
Residu						Likelihood of	Cost I	mpact	Schedule	Impact
Job		Risk Descrij	ption			Likelihood of Occurring Mitigation Plan Basis of estimate	Cost I Low	mpact High	Schedule Low	Impact High
Job		Risk Descri	ption			Likelihood of Occurring Mitigation Plan Basis of estimate	Cost I Low	mpact High	Schedule Low	Impact High
Job		Risk Descri	ption			Likelihood of Occurring Mitigation Plan Basis of estimate	Cost I Low	mpact High	Schedule Low	Impact High
Job		Risk Descrij	ption			Likelihood of Occurring Mitigation Plan Basis of estimate	Cost I Low	mpact High	Schedule Low	Impact High
		Risk Descrij	ption			Likelihood of Occurring Mitigation Plan Basis of estimate	Cost I Low	mpact High	Schedule Low	Impact High
Job NONE Notes:		Risk Descrip	ption			Likelihood of Occurring Mitigation Plan Basis of estimate	Cost I Low	mpact High	Schedule	Impact High
Job NONE Notes:	Low cost and schedul	Risk Descrij le impacts are consid	ption	nimum (0-p	percentile) in	Likelihood of Occurring Mitigation Plan Basis of estimate	Cost I	mpact High	Schedule Low	Impact High
Job NONE Notes: [1]	Low cost and schedul High cost and schedul	Risk Descrij le impacts are consid le impacts are consid le impacts are consid	ption dered the mi dered the ma	nimum (0-p	percentile) in 00-percentile	Likelihood of Occurring Mitigation Plan Basis of estimate	Cost I	mpact High	Schedule Low	Impact High
Job NONE Notes: [1]	Low cost and schedul High cost and schedul Cost impacts should to Cost impacts should to	Risk Descrip e impacts are consid le impacts are consid pe entered as man-ho NOT include standing	ption dered the mi dered the mi ours (by den g army costs	nimum (0-p aximum (10 nographic) s which are	percentile) in 00-percentile and M&S dir separately (Likelihood of Occurring Mitigation Plan Basis of estimate A state of the event occur. P) impacts should the event occur. P) impacts should the event occur rect cost under basis of estimate. Calculated from the schedule impact	Cost I Low	High	Schedule Low	Impact High
Job NONE Notes: [1] [2]	Low cost and schedul High cost and schedu Cost impacts should t Cost impacts should t Project control is repo	Risk Descrip Risk Descrip e impacts are consid le impacts are consi be entered as man-ho NOT include standing possible for quantifyin	dered the mi dered the mi dered the ma ours (by den g army costs og the low ar	nimum (0-p aximum (10 nographic) s which are ad high cos	percentile) im 00-percentile and M&S dir separately o t impacts ba	Likelihood of Occurring Mitigation Plan Basis of estimate Analysis of estimate Analysis of estimate Analysis should the event occur. analysis should the event occur pimpacts should the event occur rect cost under basis of estimate. Calculated from the schedule impact ased on the labor hours and M&S identified	Cost I Low	High	Schedule Low	Impact High
	Low cost and schedul High cost and schedu Cost impacts should t Cost impacts should t Project control is repo The schedule impacts	Risk Descrip Risk Descrip e impacts are consid le impacts are consid be entered as man-he NOT include standing onsible for quantifyin a should be entered a	dered the mi dered the mi dered the ma ours (by den g army costs ng the low ar us the min ar	nimum (0-p aximum (10 nographic) s which are nd high cos nd max imp	percentile) im 00-percentile and M&S dir separately o t impacts ba acts on the o	Likelihood of Occurring Mitigation Plan Basis of estimate Basis of estimate Description Plan Basis of estimate Descriptio	Cost I Low	mpact High	Schedule Low	Impact High
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Job NONE [1] [2] [3] [4]	Low cost and schedul High cost and schedul Cost impacts should t Cost impacts should t Project control is repo The schedule impacts If there is no critical p Likelihood of occurre	Risk Descrip Risk Descrip e impacts are considered as man-he NOT include standing onsible for quantifying should be entered a ath impact then the s nice should be entered a	dered the mi dered the mi dered the mi ours (by den g army costs og the low ar is the min ar schedule en is chedule en is docusisten	nimum (0-p aximum (10 nographic) s which are nd high cos nd max imp tries should t with our r	percentile) in 00-percentile and M&S dir separately of t impacts ba acts on the d be zero. isk classifica	Likelihood of Occurring Mitigation Plan Basis of estimate Basis of estimate Basis of estimate Discrete Should the event occur. Discrete Should the event occur expression of estimate. Calculated from the schedule impact Based on the labor hours and M&S identified Critical path.	Cost I Low	High	Schedule Low	High
Job NONE [1] [2] [3] [4]	Low cost and schedul High cost and schedu Cost impacts should t Cost impacts should t Project control is repo The schedule impacts If there is no critical p Likelihood of occurret VL= Very Likely (P>80	Risk Descrip Risk Descrip le impacts are consid le impacts are consid be entered as man-he NOT include standing onsible for quantifyin should be entered a ath impact then the s nce should be entered 0%), L=Likely (80%>F	dered the mi dered the mi dered the mi ours (by den g army costs og the low ar is the min ar schedule en ed consisten P>40%), U=U	nimum (0-p aximum (10 nographic) s which are id high cos id max imp tries should t with our r Inlikley (40	percentile) in 00-percentile and M&S dir separately of t impacts ba acts on the d be zero. isk classifica %>P>10%), \	Likelihood of Occurring Mitigation Plan Basis of estimate Basis of estimate Basis of estimate Basis of estimate Discrete Should the event occur Prect cost under basis of estimate. Calculated from the schedule impact Based on the labor hours and M&S identified Critical path. Basis of estimate Calculated from the schedule impact Based on the labor hours and M&S identified Critical path. Basis of estimate Calculated from the schedule impact Based on the labor hours and M&S identified Critical path. Basis of estimate Calculated from the schedule impact Based on the labor hours and M&S identified Critical path. Basis of estimate Calculated from the schedule impact Based on the labor hours and M&S identified Critical path. Basis of estimate Calculated from the schedule impact Based on the labor hours and M&S identified Critical path. Based On the labor hours a	Cost I Low	mpact High	Schedule Low	High
Job NONE Notes: [1] [2] [3] [4]	Low cost and schedul High cost and schedul Cost impacts should t Cost impacts should t Project control is repo The schedule impacts If there is no critical p Likelihood of occurrer VL= Very Likely (P>80	Risk Descrip Risk Descrip e impacts are considered as man-he NOT include standing onsible for quantifying should be entered as ath impact then the since should be entered once should be entered by, L=Likely (80%>F	dered the mi dered the mi dered the mi ours (by den g army costs og the low ar is the min ar schedule en d consisten 2>40%), U=U	nimum (0-p aximum (10 nographic) s which are nd high cos nd max imp tries should t with our r inlikley (40	percentile) in 00-percentile and M&S dir separately of t impacts ba acts on the d be zero. isk classific, %>P>10%), \	Likelihood of Occurring Mitigation Plan Basis of estimate Basis of estimate Basis of estimate Basis of estimate Discrete Should the event occur. Discrete Should the event occur Prect cost under basis of estimate. Calculated from the schedule impact Based on the labor hours and M&S identified Critical path. Discrete Basis of estimate. Calculated from the schedule impact Based on the labor hours and M&S identified Critical path. Discrete Basis of estimate. Discrete Basis of e	Cost I Low	mpact High	Schedule Low	Impact High

	Activity	MILE-	Activity	Duration	Baseline	Baseline	Shifts	Total	%	Proposed														
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		& 3)															Ш							ШЦ
ł	53 - Data	Acqu	isition & Facility Computing																					
	Job: 5301 - E	Data Ac	quisition-SICHTA																					
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	R53-11			0		12JUN09		55		0.00														
	R53-20		Final Design	30	15JUN09	27JUL09		55		12,407.20							JEC/	//EM =	=80hr ;					
	R53-21		FDR	0		27JUL09		55		0.00														
	R53-30		Procurement	30	28JUL09	08SEP09		55		30,352.80								C//EM 3=03	l =20hr ; 41=1	; 37=0 7\$k ;	02;			
	R53-40		Installation	30	09SEP09	20OCT09		55		3,063.79								lec//e	M =00	ır ; EC	C//TB =	40;		
	R53-50		MDSplus Installation	20	21OCT09	17NOV09		55		12,828.80							ſ	EC//	EM =80)hr ;				
	R53-60		MDSplus Programming - Tree Design	20	18NOV09	17DEC09		55		12,828.80								IEC/	//EM =8	30hr ;				
	R53-70		MDSplus Programming - Shot Sync	20	18DEC09	26JAN10		55		12,828.80								₩E(C//EM =	=80hr	;			
	R53-110		Programming - Misc.	60	27JAN10	20APR10		55		25,657.60									EC//E	:M =16	60hr ;			
	R53-80		MDSplus Programming - Dispatcher	30	21APR10	02JUN10		55		25,657.60									EC/	/EM =	160hr	;		
	R53-90		MDSplus Programming - Acquisition	20	03JUN10	30JUN10		55		12,828.80									∎ec	://EM	=80hr	;		
	R53-120		Test	14	01JUL10	21JUL10		55		9,532.80									De	C//EM	l =40hi	; EC/	//TB =	40 ;
5	Subtotal			304	01MAY09	21JUL10		55		164,190.59						\mathcal{A}		_						
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