

NCSX Work Approval Form (WAF)

WBS Number: 74

WBS Title: Machine Assembly Planning & Oversight

Job Numbers: 7401 and 7451

Job Title: Machine Assembly Planning & Oversight (7401)

Job Title: ORNL Support of Redesigns (7451)

Job Manager: Erik Perry (7401) and Mike Cole (7451)

Description:

This WBS element includes those activities associated with planning the assembly and installation, of the NCSX device. It includes the Construction Management coordination between WBS elements whose activities directly involve the assembly of the NCSX components in the NCSX test cell and basement. It also includes participation in design reviews by the Construction Manager to assure the constructability of the NCSX facility.

Schedule:

See Attached

Approvals:

Job Manager

Date

Job Manager

Date

Responsible Line Manager

Date

Project Manager

Date

Engineering Department Head

Date

**NCSX June 2007 ETC
TABLE I - DESIGN LABOR**

Description:		FY07\$K															HOURS															Basis of Estimate
Task ID		41MS	48MS	37STK	35TRVL	31OT	ORNL EM	ORNL DSN	EMEM	EMSIM	EMSB	EMTB	EAEM	EAEM Dsn	EASB	EEEM	EESM	EESB	EETB	ECEM	ECSB	ECTB	RM2	RM3								
None - this is an assembly operation																																

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TABLE II - Materials and Subcontracts

Materials and Subcontracts (M&S)							
Description:						Basis of Estimate	
None - this is an assembly operation							

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TABLE III - Fabrication/Assembly Installation

WBS Number: 74												
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Job Title: ORNL Support of Redesigns (7451)												
Job Manager: Erik Perry (7401) and Mike Cole (7451)												
In-house Fabrication and Assembly and Installation												
Job 7401 - Machine Assembly Planning & Oversight										Basis of Estimate		
		K\$	Hours						Duration in Shifts	Persons per Shift	Assumptions	The plan estimate is based on the time required for the preparation of the existing assembly plan. The LOE oversight is based on the actual costs for the NSTX assembly oversight and the TFTR D&D Project oversight.
Description of Task	ACT	M&S	EAEM	Metrology	ORNL EM	EMEM	EMSM	EMTB				
LOE FY07 prior to assembly starting	714.020					120	90					
Update Final Assembly Plan						160					Based on time to do existing plan	
LOE during assembly (thru first plasma) 1.0 fte each EM and SM	714.030					1.0 fte	1.0 fte				LOE based on TFTR & NSTX Assembly. (1.0 fte only is required on 2nd shift if used)	
Test Cell 110v outlets	7502-001							48			GPP Funded	
Test Cell 208v outlets	7502-002							24			GPP Funded	
Subtotal Job 7401												
		\$0.0K	0	0		280	162	0				

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TABLE IV - Uncertainty of Estimate and Residual Risk Assessment

Uncertainty of the Estimate									
		<u>High</u>	<u>Medium</u>	<u>Low</u>	<u>Uncertainty Range</u>	<u>Comments/Other Considerations</u>			
Job 7401									
	Design Maturity			X		Linked with Job 7503 => Estimated without detailed drawings. Significant uncertainty that current concept will stay the same - see Residual Risks below.			
	Design Complexity		X		-20%/+40%	Linked to Job 7503 => Experienced in assembly fusion devices, but tolerances exceed anything done before.			
Job 7451									
	Design Maturity			X		Linked with Job 7503 => Estimated without detailed drawings. Significant uncertainty that current concept will stay the same - see Residual Risks below.			
	Design Complexity		X		-20%/+40%	Linked to Job 7503 => Experienced in assembly fusion devices, but tolerances exceed anything done before.			
	Other Comments:					This job is LOE - as WBS 75 increases in duration this job will increase in duration the same amount.			
Note: High/Medium/Low uncertainty assessment from Job Manager. Uncertainty range based on AACEI 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	
7401	Loss or prolonged unavailability of certain key personnel (Viola or Perry) from the project could substantially impact the schedule.	VU	Viola and Perry will be cross-trained such that each could do the other's job	Estimated impact is <1 months on the critical path. Cost estimates cover 0-1 months of near term FPA assembly (in addition to the standing army costs addressed under schedule impact).	+\$240K	+\$480K	+1.00	+2.00	
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%)								

Activity ID	MILE-stones (level 2 & 3)	Activity Description	Duration (work days)	Baseline Start	Baseline Finish	Shifts	Total Float	% cmplt	Proposed Budgeted							
										FY07	FY08	FY09	FY10	FY11	FY12	
74 - Machine Assembly Planning and Oversight																
Job: 7401 - TC Prep & Mach Assy Planning-PERRY																
Oversight and Supervision																
1802ORNLF		ORNL Title III final machine assy	482*	26JAN09	03JAN11		0	LOE	381,381.71							
714.030		LOE Start of assy through thru completion	482*	26JAN09	03JAN11	LOE	0	LOE	1,024,421.59							
714.031		Additional supervision for 2nd shift	217*	05MAR10	03JAN11	2	0	LOE	260,116.73							
7401ACPWR																
7401ACPWR		Prior ac pwr work reclassified as gpp	356	01MAY07A	31MAY07A			LOE	-308,300.00							
714.020		LOE Prior to assy starting	356	01OCT07*	10MAR09		926	LOE	32,389.94							
714.025		Update Final Assembly Plan	45	03OCT08*	08DEC08		30		26,480.00							
7502-001		Test Cell 110/208voutlets GPP SCOPE TO COMPLETE	65	15AUG08*	14NOV08		44		0.00							
Subtotal			0		03JAN11		443		1,416,489.97							

ORNL EM =1670;ornldm
travel=12
Perry 1.0 fté Langella 1.0
2nd sht supervision 1.0 fte

EM//EM =120hr ; EE//SM =90hr ;
EM//EM =160hr ;