NCSX June 2007 ETC
TABLE I - DESIGN LABOR

WBS Number: 142
WBS Title: Windings and Assembly
Job Number: 1421
Job Title: Design of Modular Coil Interfaces
Job Manager:David Williamson

Description:
Title I, II and III Engineering for design of the modular coil interfaces.

NOTE: Title III for these components is included in Job 1802

Task ID		41MS	48MS	37STK	35TRVL	31OT	ORNL EM	EMEM	EMSM	EMSB	EMTB	EAEM	EASB	EEEM	EESM	Basis of Estimate
							FY07$K									
																see Table V - Basis of Estimate
Outboard Interface Design																see Table V - Basis of Estimate
IH4-020	Prepare outboard shim dwgs and release						60									see Table V - Basis of Estimate
INTRF-045	FDR outboard shims						40									see Table V - Basis of Estimate
	Resolve CHITs and issue shim drawings						60									
																see Table V - Basis of Estimate
Bolted Joint Tests																see Table V - Basis of Estimate
	Tension Tests of Bolted Joint															see Table V - Basis of Estimate
1421-3067	Procure 2 studs f/joint test.Use existing part							8								see Table V - Basis of Estimate
1421-3075	Setup test fixture &perform JHA & pre-job brief							8								
1421-3077	Meas joint deflect vs preload & loss of preload							24								see Table V - Basis of Estimate
1421-3079	Measure joint deflec & preload v. temp @80K							24								see Table V - Basis of Estimate
1421-3084	Measure joint deflection&preload v. cooldown cyc							24								see Table V - Basis of Estimate
1421-3087	Perform pullout tests for tapped holes							24								
1421-3081	Meas joint deflect & preload v. time (days) at R							160								see Table V - Basis of Estimate
1421-3090	Document&conduct review of test results							40								see Table V - Basis of Estimate
																see Table V - Basis of Estimate
	Bolt Shear Test at 77k															see Table V - Basis of Estimate
1421-3112B	Procure/fab parts for test&initial assembly						40									see Table V - Basis of Estimate
1421-3115B	Assemble & test						320									see Table V - Basis of Estimate
1421-3119B	Document test results						80									see Table V - Basis of Estimate
																see Table V - Basis of Estimate
Inboard Interface Design																see Table V - Basis of Estimate
IH1-001	Coil to coil analysis						520									see Table V - Basis of Estimate
1421-3125	Determine geometry&location of high COF shims&pl						80									
1421-3127	Structural analyses to performance rqmts for bol						240									see Table V - Basis of Estimate
1421-3132	PDR to review requirements, design,&development						40									
																see Table V - Basis of Estimate
AB/BC/AA welded joints																see Table V - Basis of Estimate
	Prepare winding form mods for weld clamping bolts						300									see Table V - Basis of Estimate
INTRF-050	Complete Shim fabrication drawings (ORNL)						240									see Table V - Basis of Estimate
	Release information for procurement of shim material						24									
INTRF-055	FDR AB/BC/AA inboard shims						40									see Table V - Basis of Estimate
																see Table V - Basis of Estimate
CC bolted joint																see Table V - Basis of Estimate
IH1-000	ESTABLISH CONCEPT						680									see Table V - Basis of Estimate
IH1-0000	PEER REVIEW OF JOINT CONCEPT						80									see Table V - Basis of Estimate
	Add bolt holes to C winding form for CC interface						140									see Table V - Basis of Estimate
	Bolt Reach and Access study (mockup)						200									see Table V - Basis of Estimate
	Prepare CC shim drawiings and release						360									see Table V - Basis of Estimate
	FDR CC inboard shims						40									see Table V - Basis of Estimate

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Job Title: Design of Modular Coil Interfaces																	
Job Manager:David Williamson																	
Welded Joint Tests																	
	Procedure																
INTRF-035	PPPL Determine shim material							40									see Table V - Basis of Estimate
INTRF-001	PPPL buy SS plate for weld trials							8									see Table V - Basis of Estimate
INTRF-005	Weld distortion trials at PPPL on SS plate							40									see Table V - Basis of Estimate
INTRF-025	ORNL build pywood mockup of flange						140										see Table V - Basis of Estimate
INTRF-030	ORNL verify weld access, develop alternate welding methods						40										see Table V - Basis of Estimate
INTRF-010	Develop Weld Geometry Procedure						40										see Table V - Basis of Estimate
	Test																
INTRF-015	Weld trials on two MCWF's at PPPL							80									see Table V - Basis of Estimate
INTRF-020	Document results and update weld procedure							120									see Table V - Basis of Estimate
Overall interface																	
INTRF-040	Analysis of tensil loads (ORNL)						320										see Table V - Basis of Estimate
1421-3134	Develop specs & dwgs for station 2 &3 assy						300										see Table V - Basis of Estimate
1421-3136	Conduct MC interface FDR incl job 1416						40										see Table V - Basis of Estimate
1421-3138	Resolve issues, release assembly drawings						240										see Table V - Basis of Estimate. **Specs in Job 1806**
FY07 Rebaseline exercise																	
ECP53RBX05	FY07 Rebaseline Exercise						256										
Travel																	
	trips for ORNL personnel to PPPL				$9k												6 trips at $1500 avg
	trips for PPPL personnel to UT MDL				$3k												2 trips at $1500 avg
	SUBTOTAL				$12k		4960	600									
unlisted, known labor hours																	
	scheduled and unscheduled meetings/reporting/presentations (@ 25%)						1240	150									see Table V - Basis of Estimate
	TOTAL				**$12k**		**6200**	**750**									