

NCSX June 2007 ETC
TABLE I - DESIGN LABOR

WBS Number: 171
WBS Title: Cryostat
Job Number: 1701
Job Titles: Cryostat Design
Job Manager: G. Gettelfinger

Description:

This tab covers all Title I, II, and III engineering for the insulating cryostat, which includes penetrations for all piercing conduits, pipes, and structures. This system will be fabricated in-house by PPPL. All Title III engr associated with installation is included in WBS In this job. Shop fab hours are covered in tab 3. Test cell installation time (approx. 1200 hrs.) is in WBS 7xx.

Job 1701

Task ID	Multiplier	Unit	Number of Units	Hours	HOURS											Basis of Estimate
					ORNLEM	ORNLDN	ORNOLRM	EMEM	EMSM	EMSB	EMTB	EAEM	EASB	EEEM	EESM	
Title I and II Design																
Pro-E models (avg)	8	hrs/model	21	168										168	Based on recent experience on similar projects	
assy dwgs	12	hrs/dwg	18	216										216	Based on recent experience on similar projects	
Detail drawings	12	hrs/dwg	20	240										240	Based on recent experience on similar projects	
installation dwg	12	hrs/dwg	15	180										180	Based on recent experience on similar projects	
designer oversight	320	hrs	1	320				320							Engineering judgement based on recent experience tempered by WBS manager	
electrical schematic	0	hrs/dwg	0	0	0											
I&C schematic	0	hrs/dwg	0	0	0											
stress analysis	200	hrs/calc	1	200							200				Engineering judgement based on recent experience tempered by WBS manager	
thermal analysis	160	hrs/calc	0	0							0					
special analysis (electromagnetics)	0	hrs/calc	0	0	0											
Procurement Specifications	0	hrs/spec	0	0	0											
preliminary and final design reviews	80	hrs/rev	1	80				80							Engineering judgement based on recent experience tempered by WBS manager	
<i>Subtotal Title I & II Design</i>				1404	0	0	0	400	0	0	0	200	804	0	0	
Title III																
vendor inspection & oversight	0	hrs per	1	0	0											
Disposition of deviation requests and non-conformances	0	hrs/wk	20	0	0											
In-House fab/assy oversight & inspection	14	hrs/wk	20	280				280								
Preliminary shake-down testing	40	hrs/wk	2	80				80							Based on past system start-ups.	
As-built drawings	0	hrs/dwg	84	0	0											
<i>Subtotal Title III Design</i>				360	0	0	0	360	0	0	0	0	0	0	0	