

## FY03 NCSX Job Planning

### Attachments

- A) Budget Guidance
- B) Schedule Guidance
- C) sample format
- D) resource codes

### Instructions

- 1) Establish job package groupings and identify job managers (see **attachment D** for job numbering scheme)
- 2) Identify deliverable oriented tasks
- 3) Prepare a resource loaded schedule in a logic diagram format (not a punch list of "to-do" tasks. **See attachment C** as a format). This logic diagram can be either hand drawn, Excel based, Fast track, Microsoft project etc.)
- 4) Task durations 1-2 months except Level-Of-Effort (LOE) (ie. Supervision, support, misc materials/supplies etc.)
- 5) Identify major links, prerequisites, interfaces with other WBS schedules.
- 6) Estimate manpower in manhours. Use the established manpower resource codes on **attachment D**.
- 7) Identify engineers, researchers, designers etc by name (for internal manpower planning)
- 8) Estimate non labor costs such as travel, materials and supplies, subcontract cost (PPPL estimates should not include overhead. ORNL should include overhead)
- 9) On a separate sheet list assumptions, basis of estimate and deliverables.
- 10) ALL WORK IN FY03 MUST BE PLANNED

Estimates to be submitted to Ron Strykowski NLT Friday August 23rd

# ATTACHMENT A

## NCSX FY03 Budget Guidance (\$K)

<b>MIE (cc 9450)</b>	<b>WBS 1 level manager</b>	<b>WBS 2/Job manager</b>	<b>FY03 Target \$ (loaded)</b>	<b>Note</b>
11 - In-Vessel Components	Brad Nelson	Paul Goranson	<b>\$47</b>	
12 - Vacuum Vessel Systems	Brad Nelson	Paul Goranson	<b>\$1,009</b>	incl \$400k M&S contract for VV R&D
13 - Conventional Coils	Brad Nelson	David Williamson	<b>\$326</b>	
14 - Modular Coils	Brad Nelson	David Williamson	<b>\$5,037</b>	incl \$1.2m M&S contract for casting R&D (\$600k each vendor) incl \$393k R&D M&S
15 - Structures	Brad Nelson	David Williamson	<b>\$196</b>	
16 - Coil Services	Brad Nelson	David Williamson		
17 - Cryostat and Base Support Structure	Brad Nelson	Tom Brown	<b>\$0</b>	
18 - Field Period Assembly	Brad Nelson	Jim Chrzanowski	<b>\$48</b>	
19 - Stellarator Core Management and Integratio	Brad Nelson	Brad Nelson		<i>included in above. To be broken out by ORNL.</i>
21 - Fueling Systems	Henry Kugel	Bill Blanchard	<b>\$2</b>	
22 - Torus Vacuum Pumping Systems	Henry Kugel	Bill Blanchard	<b>\$6</b>	
23 - Wall Conditioning Systems	Henry Kugel	Bill Blanchard	<b>\$5</b>	
25 - Neutral Beam Injection System	Henry Kugel	Tim Stevenson	<b>\$211</b>	
31 - Magnetic Diagnostics		Dave Johnson	<b>\$13</b>	
35 - Profile Diagnostics		Dave Johnson		
36 - Edge and Divertor Diagnostics		Dave Johnson		
38 - Electron Beam (EB) Mapping		Dave Johnson		
39 - Diagnostics Integration		Dave Johnson	<b>\$59</b>	
41 - AC Power		Raki Ramakrishnan	<b>\$37</b>	
42 - AC/DC Converters		Raki Ramakrishnan		
43 - DC Systems		Raki Ramakrishnan	<b>\$118</b>	
44 - Control and protection Systems		Raki Ramakrishnan	<b>\$83</b>	
45 - Power System Design and Integration		Raki Ramakrishnan	<b>\$100</b>	
46 - FCPC Building Modifications		Raki Ramakrishnan		
51 - TCP/IP Infrastructure Systems		Gary Oliaro	<b>\$3</b>	
52 - Central Instrumentation & Control		Gary Oliaro	<b>\$3</b>	
53 - Data Acquisition & Facility Computing		Gary Oliaro	<b>\$3</b>	
54 - Facility Timing & Synchronization		Gary Oliaro	<b>\$3</b>	
55 - Real Time Plasma & Power Supply Control		Gary Oliaro	<b>\$3</b>	
56 - Central Safety Interlock Systems		Gary Oliaro	<b>\$3</b>	
57 - Control Room Facility		Gary Oliaro	<b>\$3</b>	
61 - Water Systems		Larry Dudek		
62 - Cryogenic Systems		Larry Dudek		
63 - Utility Systems		Larry Dudek		
64 - Bakeout System		Larry Dudek		
65 - Facility Systems Integration		Larry Dudek	<b>\$53</b>	
71 - Shield Wall Seismic Modifications		Erik Perry	<b>\$476</b>	
72 - Control Room Refurbishment		Erik Perry		
73 - Platform Design & Fabrication		Erik Perry		
74 - Machine Assembly Planning and Oversight		Erik Perry	<b>\$39</b>	
75 - Test Cell and Basement Assembly Operatio		Erik Perry		
76 - Integrated Systems Testing		Erik Perry		
77 - Tooling Design and Fabrication		Erik Perry		
81 - Project Management and Control	Hutch Neilson	Ron Strykowski	<b>\$768</b>	
82 - Project Engineering	Hutch Neilson	Wayne Reiersen	<b>\$502</b>	
84 - Project Physics	Hutch Neilson	Mike Zarnstorff	<b>\$304</b>	
PPPL ALLOCATIONS			<b>\$171</b>	
CONTINGENCY			<b>\$1,368</b>	
<b>Grand Total</b>			<b>\$11,000</b>	

Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	Schedule											
					FY03	FY04	FY05	FY06	FY07	FY08	FY09					
<b>cc 9450 - NCSX Fabrication</b>																
<b>1 - Stellarator Core Systems</b>																
<b>11 - In-Vessel Components</b>																
<b>111 - Limiters</b>																
<b>First Wall Components</b>																
111-001	Title I design WBS 111 limiters	03FEB03*	29APR03	21,549.25												
111-011	Title II design WBS 111 limiters	01JUL04*	29SEP04	47,106.70												
111-021	In-house R&D	03FEB03*	23APR03	12,685.73												
111-031	Title III engr	03OCT05*	31MAR06	18,340.29												
111-037	First Wall Panels Procurement	03OCT05*	23DEC05	89,390.95												
111-041	In-house Fab/assy	26DEC05	20JAN06	11,521.28												
<b>PFC Local I&amp;C</b>																
116-001	Title I design WBS 116 PFC local I&C	03FEB03*	29APR03	12,953.93												
116-011	Title II design WBS 116 PFC local I&C	01JUL04*	29SEP04	14,082.39												
116-012	FDR Limiters WBS 111 and 116		29SEP04	0.00												
116-031	Title III engr	03OCT05*	17MAR06	3,434.92												
116-037	PFC Local I&C Procurement	03OCT05*	23DEC05	4,808.51												
116-041	In-house Fab/assy	26DEC05	20JAN06	4,412.32												
<b>12 - Vacuum Vessel Systems</b>																
<b>121 - Vacuum Vessel Assembly</b>																
<b>Design</b>																
121-001	Title I design WBS 121 vac vsl	01OCT02*	01MAY03	166,504.88												
121-002	WBS 12 and 14 concurrent PDR IA		02MAY03	0.00												
121-011	Title II design WBS 121 vac vsl	05MAY03	02DEC03	189,282.46												
121-012	WBS 121 vac vsl sheel FDR		02DEC03	0.00												
121-032	Select Vendors for R&D	01OCT02*	30DEC02	0.00												
121-033	Award 2 Vendors for R&D	31DEC02	20JAN03	0.00												
121-034	Vendor R&D (1/A)	21JAN03	29SEP03	651,756.16												

Current schedule target

CDR Schedule (for comparison)

CDR cost and resource estimates (for reference)

Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	FY03	FY04	FY05	FY06	FY07	FY08	FY09
121-035	PPPL Prep and Issue RFP Package	22OCT03	16DEC03	0.00							
121-036	Vendors prepare proposals	17DEC03	24FEB04	0.00							
121-037	Project Evaluate Proposals and Award	25FEB04	23MAR04	0.00							
121-038	Award Production Vendor	24MAR04		0.00							
<b>Period #1</b>											
121-039	VV vendor phase funding 1 (E/A F/B)	24MAR04	11FEB05	963,213.40			41=500\$ ; 4e=\$333.33; 35=8\$ ;				
121-100	Mfg Planning/Design tooling & fixturing	24MAR04	15JUN04	0.00							
121-110	Procure raw material ,purchased components&fixt	16JUN04	05OCT04	0.00							
121-120	Form Panels	06OCT04	19OCT04	0.00							
121-125	Fabricate & pre-machine port flanges	06OCT04	02NOV04	0.00							
121-130	Fabricate 60* periods	03NOV04	30NOV04	0.00							
121-140	Inspect profile	01DEC04	02DEC04	0.00			.				
121-150	Stress relieve anneal	03DEC04	06DEC04	0.00			.				
121-160	Sand blast smooth	07DEC04	08DEC04	0.00			.				
121-170	Electro Polish surfaces	09DEC04	17DEC04	0.00			-				
121-180	Weld 120* periods	20DEC04	24DEC04	0.00			-				
121-190	Inspect Profile	27DEC04	28DEC04	0.00			.				
121-200	Machine Port openings	29DEC04	04JAN05	0.00			-				
121-210	Thermal cycle vessel	05JAN05	06JAN05	0.00			.				
121-220	Perform vacuum test at 150C	07JAN05	10JAN05	0.00			.				
121-230	Perform final dimensional inspection	11JAN05	17JAN05	0.00			-				
121-240	Touch-up polish inside surfaces & cleanup ext	18JAN05	28JAN05	0.00			-				
121-250	Clean part per cleaning procedure	31JAN05	04FEB05	0.00			-				
121-260	Final visual inspection/PPPL source witness	07FEB05	08FEB05	0.00			.				
121-270	Ship Period 1 Vac Vsl to PPPL	09FEB05	15FEB05	0.00			.				
<b>Period #2</b>											
121-040	VV vendor phase funding 2 (1/A)	14FEB05	20JUN05	898,330.13				4e=833.33\$ ; 35=8\$ ;			
121-120-3	Form Panels	09FEB05	22FEB05	0.00							
121-125-3	Fabricate & pre-machine port flanges	09FEB05	08MAR05	0.00							
121-130-3	Fabricate 60* periods	09MAR05	05APR05	0.00							

Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	FY03	FY04	FY05	FY06	FY07	FY08	FY09
121-140-3	Inspect profile	06APR05	07APR05	0.00							
121-150-3	Stress relieve anneal	08APR05	11APR05	0.00							
121-160-3	Sand blast smooth	12APR05	13APR05	0.00							
121-170-3	Electro Polish surfaces	14APR05	22APR05	0.00							
121-180-3	Weld 120* periods	25APR05	29APR05	0.00							
121-190-3	Inspect Profile	02MAY05	03MAY05	0.00							
121-200-3	Machine Port openings	04MAY05	10MAY05	0.00							
121-210-3	Thermal cycle vessel	11MAY05	12MAY05	0.00							
121-220-3	Perform vacuum test at 150C	13MAY05	16MAY05	0.00							
121-230-3	Perform final dimensional inspection	17MAY05	23MAY05	0.00							
121-240-3	Touch-up polish inside surfaces & cleanup ext	24MAY05	03JUN05	0.00							
121-250-3	Clean part per cleaning procedure	06JUN05	10JUN05	0.00							
121-260-3	Final visual inspection/PPPL source witness	13JUN05	14JUN05	0.00							
121-270-3	Ship Period 2 Vac Vsl to PPPL	15JUN05	21JUN05	0.00							
<b>Period #3</b>											
121-041	VV vendor phase funding 3 (1/A)	21JUN05	26OCT05	898,346.77							
121-120-2	Form Panels	15JUN05	28JUN05	0.00							
121-125-2	Fabricate & pre-machine port flanges	15JUN05	12JUL05	0.00							
121-130-2	Fabricate 60* periods	13JUL05	09AUG05	0.00							
121-140-2	Inspect profile	10AUG05	11AUG05	0.00							
121-150-2	Stress relieve anneal	12AUG05	15AUG05	0.00							
121-160-2	Sand blast smooth	16AUG05	17AUG05	0.00							
121-170-2	Electro Polish surfaces	18AUG05	26AUG05	0.00							
121-180-2	Weld 120* periods	29AUG05	02SEP05	0.00							
121-190-2	Inspect Profile	05SEP05	06SEP05	0.00							
121-200-2	Machine Port openings	07SEP05	13SEP05	0.00							
121-210-2	Thermal cycle vessel	14SEP05	15SEP05	0.00							
121-220-2	Perform vacuum test at 150C	16SEP05	19SEP05	0.00							
121-230-2	Perform final dimensional inspection	20SEP05	26SEP05	0.00							
121-240-2	Touch-up polish inside surfaces & cleanup ext	27SEP05	07OCT05	0.00							

46=853.33\$k ; 35=8\$k ;

Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	FY							
					FY03	FY04	FY05	FY06	FY07	FY08	FY09	
121-250-2	Clean part per cleaning procedure	10OCT05	14OCT05	0.00								
121-260-2	Final visual inspection/PPPL source witness	17OCT05	18OCT05	0.00								
121-270-2	Ship Perido 3 Vac Vsl to PPPL	19OCT05	25OCT05	0.00								
<b>VV Ports</b>												
121-280	Ports- Fabricate Port ext subassy & NB port assy	20OCT04*	18JAN05	0.00			■	—				
121-290	Inspect/clean	19JAN05	25JAN05	0.00				.				
121-300	Ship ports to PPPL	26JAN05	01FEB05	0.00				.				
121-031	Title III engr	03DEC03	30MAY06	256,862.14		■■■■■■■■■■ EA/EM =563hr ; ORNLEM =1,260hr ;						
<b>122 - Vacuum Vessel Thermal Insulation</b>												
122-001	Title I design WBS 122 Thermal insulation	03FEB03	02MAY03	17,897.60	■	EA/EM =10hr ; ORNLEM =145hr ;						
122-011	Title II design WBS 122 Thermal insulation	03DEC03	18MAY04	39,211.22		■■■■ EA/EM =20hr ; ORNLEM =291hr ;						
122-031	Title III engr	18AUG04*	02AUG05	23,280.45			■■■■ EA/EM =34hr ; ORNLEM =136hr ;					
122-037	VV Insulation Procurement	18AUG04*	01FEB05	38,687.13			■■■■ 41=29\$k ; 35=02\$k ;					
<b>123 - Vacuum Vessel Heating and Cooling Distrib</b>												
123-001	Title I design WBS 123 Htg/Cooling	24MAR03	02MAY03	12,479.36	■	EA/EM =10hr ; ORNLEM =97hr ;						
123-011	Title II design WBS 123 Htg/Cooling	02FEB04*	30APR04	27,200.68		— ■ EA/EM =20hr ; ORNLEM =194hr ;						
123-031	Title III engr	03MAY04*	21JAN05	7,384.87			■■■■ EA/EM =08hr ; ORNLEM =48hr ;					
123-037	VV Heating/Cooling Distr Procurement	03MAY04*	23JUL04	27,714.77			— ■ 41=23\$k ;					
123-041	VV Heating/Cooling Fab/assy	26JUL04	15OCT04	67,656.72			— ■ EM/SM =162hr ; EM/TB =647hr ;					
<b>124 - Vacuum Vessel Supports</b>												
124-001	Title I design WBS 124 VV supports	03MAR03	02MAY03	17,880.19	■	ORNLEM =158hr ;						
124-011	Title II design WBS 124 VV supports	02FEB04*	30APR04	19,613.09		— ■ ORNLEM =158hr ;						
124-031	Title III engr	03MAY04*	17SEP04	7,747.16			■■■■ EA/EM =02hr ; ORNLEM =60hr ;					
124-037	VV Supports Procurement	03MAY04*	23JUL04	16,520.41			— ■ 41=14\$k ;					
124-041	VV Supports Fab/assy	26JUL04	20AUG04	633.00			— ■ EM/SM =06hr ;					

Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	Fiscal Year							
					FY03	FY04	FY05	FY06	FY07	FY08	FY09	
<b>125 - Vacuum Vessel Local I&amp;C</b>												
125-001	Title I design WBS 125 local I&C	26FEB03	02MAY03	8,940.10		■ ORNLEM =79hr ;	—					
125-011	Title II design WBS 125 local I&C	02FEB04*	30APR04	9,806.54		■ ORNLEM =79hr ;						
125-012	WBS 122-125 FDR		18MAY04	0.00		■						
125-015	Title III design	03MAY04	26JUL04	2,228.76		■ ORNLEM =18hr ;						
125-037	Procurement	03MAY04	23JUL04	4,482.56		■ 41=04\$k ;	—					
<b>13 - Conventional Coils</b>												
<b>131 - TF Coils</b>												
131-001	Title I design WBS 131 TF coils	03MAR03*	26SEP03	67,264.73		■ EA/DM =210hr ; EA/EM =257hr ; ORNLEM =61hr ;						
131-002	WBS 13 and 15 concurrent PDR IB		26SEP03	0.00		▼						
131-011	Title II design WBS 131 TF coils	01OCT03*	30MAR04	70,288.04		■ EA/DM =210hr ; EA/EM =257hr ; ORNLEM =61hr ;						
131-012	WBS 13 TF/PF/Trim coil FDR		30MAR04	0.00		■						
131-031	Title III engr	01OCT04*	30MAR06	118,830.30		■ EA/EM =270hr ; ORNLEM =554hr ;						
131-037	TF Coil Procurement (E/A F/B)	01OCT04*	29SEP05	1,141,910.74		■ 41=500\$k ; 4e = \$494k ; 35=02\$k ;						
<b>132 - PF Coils</b>												
<b>1321 - PF1</b>												
141-001	Title I design WBS 1321 PF1 coils	03MAR03*	26SEP03	42,383.76		■ EA/DM =139hr ; EA/EM =155hr ; ornl=42hr						
141-011	Title II design WBS 1321 PF1 coils	01OCT03*	30MAR04	44,313.63		■ EA/DM =139hr ; EA/EM =155hr ; ORNLEM =42hr ;						
141-031	Title III engr	01OCT04*	30MAR06	62,615.04		■ EA/EM =135hr ; ORNLEM =301hr ;						
141-037	PF OH Solenoid Procurement (E/A F/B)	01OCT04*	29SEP05	113,731.16		■ 41=50\$k ; 4e=\$46 ; 35=02\$k ;						
<b>1322 - PF2</b>												
141B-001	Title I design WBS 1322 PF2 coils	03MAR03*	26SEP03	42,383.76		■ EA/DM =139hr ; EA/EM =155hr ; ornl=42hrs						
141B-011	Title II design WBS 1322 PF2 coils	01OCT03*	30MAR04	44,313.63		■ EA/DM =139hr ; EA/EM =155hr ; ORNLEM =42hr ;						
141B-031	Title III engr	01OCT04*	30MAR06	62,615.04		■ EA/EM =135hr ; ORNLEM =301hr ;						
141B-037	PF OH Solenoid Procurement (E/A F/B)	01OCT04*	29SEP05	113,731.16		■ 41=50\$k ; 4e=\$46 ; 35=02\$k ;						

Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	FY03	FY04	FY05	FY06	FY07	FY08	FY09
<b>1323 - PF3</b>											
142-001	Title I design WBS 1323 PF3 coils	03MAR03*	26SEP03	31,990.11							
142-011	Title II design WBS 1323 PF3 coils	01OCT03*	30MAR04	33,429.35							
142-031	Title III engr	01OCT04*	30MAR06	37,189.08							
142-037	PF 3 Procurement (E/A F/B)	01OCT04*	29SEP05	185,760.76							
<b>1324 - PF4</b>											
143-001	Title I design WBS 1324 PF4 coils	03MAR03*	26SEP03	31,990.11							
143-011	Title II design WBS 1324 PF4 coils	01OCT03*	30MAR04	33,429.35							
143-031	Title III engr	01OCT04*	30MAR06	37,189.08							
143-037	PF 4 Procurement (E/A F/B)	01OCT04*	29SEP05	227,147.95							
<b>1325 - PF5</b>											
144-001	Title I design WBS 1325 PF5 coils	03MAR03*	26SEP03	31,990.11							
144-011	Title II design WBS 1325 PF5 coils	01OCT03*	30MAR04	33,429.35							
144-031	Title III engr	01OCT04*	30MAR06	37,189.08							
144-037	PF 5 Procurement (E/A F/B)	01OCT04*	29SEP05	192,128.02							
<b>1326 - PF6</b>											
145-001	Title I design WBS 1326 PF6 coils	03MAR03*	26SEP03	31,990.11							
145-011	Title II design WBS 1326 PF6 coils	01OCT03*	30MAR04	33,429.35							
145-031	Title III engr	01OCT04*	30MAR06	37,189.08							
145-037	PF 6 Procurement (E/A F/B)	01OCT04*	29SEP05	145,434.78							
<b>133 - External Trim Coils</b>											
184-001	Title I design WBS 133 Ext trim coils	03MAR03*	26SEP03	28,626.60							
184-011	Title II design WBS 133 Ext trim coils	01OCT03*	30MAR04	29,744.63							
184-015	Title III design	03OCT05*	26DEC05	8,954.78							
184-037	External Trim Coil Procurement/Fab	03OCT05*	23DEC05	220,579.48							



Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	Fiscal Year							
					FY03	FY04	FY05	FY06	FY07	FY08	FY09	
<b>134 - Conventional Coil Local I&amp;C</b>												
<b>1341 - TF Coil Local I&amp;C</b>												
133-001	Title I design WBS 1341 TF I&C	05MAY03	09JUL03	9,436.77		■ ORNLEM =84hr ;		—				
133-011	Title II design WBS 1341 TF I&C	01OCT03*	30MAR04	10,351.35		■ ORNLEM =84hr ;		—				
133-037	TF I&C Procurement	01OCT04*	23DEC04	6,854.19				■ 41=06\$K ;				
<b>1342 - PF Coil Local I&amp;C</b>												
147-001	Title I design WBS 1342 pf I&C	05MAY03	09JUL03	7,944.49		■ ORNLEM =70hr ;		—				
147-011	Title II design WBS 1342 pf I&C	01OCT03*	30MAR04	8,714.45		■ ORNLEM =70hr ;		—				
147-037	PF Local I&C Procurement	01OCT04*	23DEC04	4,569.46				■ 41=04\$K ;				
<b>14 - Modular Coils</b>												
<b>141 - Modular Coil Winding Form</b>												
172-001	Title I design WBS 141 Mod coil winding form	01OCT02*	02MAY03	157,391.44	■	EA/EM =60hr ; ORNLEM =1313hr ;						
172-011	Title II design WBS 141 Mod coil winding form	05MAY03	16OCT03	156,824.42	■	EA/EM =60hr ; ORNLEM =1295hr ;						
172-012	WBS 14 Modular Coil FDR		16OCT03	0.00								
172-031	Title III engr	16JAN04	31MAR05	327,841.80				■ EA/EM =688hr ; ORNLEM =1,710hr ;				
172-037	Procurement vendor cost (A/A 1/C)	16JAN04	31MAR05	4,436,223.25				■ 41=500\$K ; 4E=3,600 ; 35=48\$K ;				
<b>Castings</b>												
C-00	Issue RFP for 2 R&D Vendors	24SEP02*		0.00	▼							
C-000	Castings-RFP for Vendor R&D	24SEP02	13DEC02	0.00	■							
C-001	Castings-Contract for Vendor R&D Placed	16DEC02		0.00	▼							
C-021	Castings-R&D casting tooling preparation type BA	16DEC02	25APR03	142,652.44	■	ea/em=185; orn=1013						
C-041	Fab 1 Both Vendors Deliver Casting (E/A F/B)	28APR03	29AUG03	1,343,396.56	■	ea/em=43; orn=237; 41=500k 4E = 700K						
C-061	Castings-R&D Casting Received at PPPL		29AUG03	0.00	▼							
C-071	Evaluate R&D casing and cost proposal	17OCT03	15JAN04	0.00	■							
C-081	Castings-Contract for Mfg. Placed with 1 vendor	16JAN04		0.00	▼							
<b>Type 1</b>												
C-121	Castings-BA-1-1	16JAN04	08APR04	0.00		■		—				
C-181	Castings-BA-4-1	09APR04	29APR04	0.00		■		—				

Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	FY03	FY04	FY05	FY06	FY07	FY08	FY09
C-261	Castings-BA-7-2	30APR04	20MAY04	0.00		■	-				
C-321	Castings-BA-10-2	21MAY04	10JUN04	0.00		■	-				
C-401	Castings-BA-13-3	11JUN04	01JUL04	0.00		■	-				
C-461	Castings-BA-16-3	02JUL04	22JUL04	0.00		■	-				
<b>Type 2</b>											
C-101	Castings-Production casting tooling prep type MI	16JAN04	15APR04	0.00		■	-				
C-141	Castings-MI-2-1	23JUL04	12AUG04	0.00		■	-				
C-201	Castings-MI-5-1	13AUG04	02SEP04	0.00		■	-				
C-281	Castings-MI-8-2	03SEP04	23SEP04	0.00		■	-				
C-341	Castings-MI-11-2	24SEP04	14OCT04	0.00		■	-				
C-421	Castings-MI-14-3	15OCT04	04NOV04	0.00		■	-				
C-481	Castings-MI-17-3	05NOV04	25NOV04	0.00		■	-				
<b>Type 3</b>											
C-102	Castings-Production casting tooling prep type BU	16APR04	15JUL04	0.00		■					
C-161B	Castings-BU-3-1	26NOV04	16DEC04	0.00			■				
C-221B	Castings-BU-6-1	17DEC04	06JAN05	0.00			■				
C-301B	Castings-BU-9-2	07JAN05	27JAN05	0.00			■				
C-361B	Castings-BU-12-2	28JAN05	17FEB05	0.00			■				
C-441B	Castings-BU-15-3	18FEB05	10MAR05	0.00			■				
C-501B	Castings-BU-18-3	11MAR05	31MAR05	0.00			■				
<b>142 - Modular Coil Windings and Assembly</b>											
<b>Period 1</b>											
<b>Type 1</b>											
P1-001	Receive casting BA-1-1	09APR04	15APR04	0.00		■	.				
P1-011	Wind coil BA-1-1	01OCT04	17NOV04	0.00			■	-			
P1-021	VPI & Ship BA-1-1	18NOV04	08DEC04	0.00			■	-			
P1-091	Receive casting BA-4-1	30APR04	06MAY04	0.00		■	.				
P1-101	Wind coil BA-4-1	01OCT04	09NOV04	0.00			■	-			
P1-111	VPI & Ship BA-4-1	09DEC04	29DEC04	0.00			■	-			
<b>Type 2</b>											
P1-031	Receive casting MI-2-1	13AUG04	19AUG04	0.00		■	.				

Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	FY03	FY04	FY05	FY06	FY07	FY08	FY09
P1-041	Wind coil MI-2-1	25JAN05	03MAR05	0.00			■				
P1-051	VPI & Ship MI-2-1	24MAR05	13APR05	0.00			■				
P1-121	Receive casting MI-5-1	03SEP04	09SEP04	0.00			.				
P1-131	Wind coil MI-5-1	27JAN05	07MAR05	0.00			■ -				
P1-141	VPI & Ship MI-5-1	14APR05	04MAY05	0.00			■ -				
<b>Type 3</b>											
P1-061	Receive casting BU-3-1	17DEC04	23DEC04	0.00			■ .				
P1-071	Wind coil BU-3-1	23MAY05	29JUN05	0.00			- ■				
P1-081	VPI & Ship BU-3-1	28JUL05	17AUG05	0.00			- ■				
P1-151	Receive casting BU-6-1	07JAN05	13JAN05	0.00			■ .				
P1-161	Wind coil BU-6-1	25MAY05	27JUN05	0.00			- ■				
P1-171	VPI & Ship BU-6-1	18AUG05	07SEP05	0.00			- ■				
<b>Period 2</b>											
<b>Type 1</b>											
P2-001	Receive casting BA-7-2	21MAY04	27MAY04	0.00			.				
P2-011	Wind coil BA-7-2	18NOV04	21DEC04	0.00			■ -				
P2-021	VPI & Ship BA-7-2	30DEC04	19JAN05	0.00			■ -				
P2-091	Receive casting BA-10-2	11JUN04	17JUN04	0.00			.				
P2-101	Wind coil BA-10-2	10NOV04	17DEC04	0.00			■ -				
P2-111	VPI & Ship BA-10-2	20JAN05	09FEB05	0.00			■ -				
<b>Type 2</b>											
P2-031	Receive casting MI-8-2	24SEP04	30SEP04	0.00			■ .				
P2-041	Wind coil MI-8-2	04MAR05	12APR05	0.00			■ -				
P2-051	VPI & Ship MI-8-2	05MAY05	25MAY05	0.00			■ -				
P2-121	Receive casting MI-11-2	15OCT04	21OCT04	0.00			.				
P2-131	Wind coil MI-11-2	08MAR05	14APR05	0.00			■ -				
P2-141	VPI & Ship MI-11-2	26MAY05	15JUN05	0.00			■ -				
<b>Type 3</b>											
P2-061	Receive casting BU-9-2	28JAN05	03FEB05	0.00			■ .				
P2-071	Wind coil BU-9-2	30JUN05	08AUG05	0.00			■				
P2-081	VPI & Ship BU-9-2	08SEP05	28SEP05	0.00			■				

Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	Schedule Guidance											
					FY03	FY04	FY05	FY06	FY07	FY08	FY09					
P2-151	Receive casting BU-12-2	18FEB05	24FEB05	0.00				.								
P2-161	Wind coil BU-12-2	28JUN05	29JUL05	0.00			■	-								
P2-171	VPI & Ship BU-12-2	29SEP05	19OCT05	0.00				■								
<b>Period 3</b>																
<b>Type 1</b>																
P3-001	Receive casting BA-13-3	02JUL04	08JUL04	0.00			.									
P3-011	Wind coil BA-13-3	22DEC04	24JAN05	0.00			■	-								
P3-021	VPI & ship BA-13-3	10FEB05	02MAR05	0.00			■	-								
P3-091	Receive casting BA-16-3	23JUL04	29JUL04	0.00			.									
P3-101	Wind coil BA-16-3	20DEC04	26JAN05	0.00			■	-								
P3-111	VPI & ship BA-16-3	03MAR05	23MAR05	0.00			■	-								
<b>Type 2</b>																
P3-031	Receive casting MI-14-3	05NOV04	11NOV04	0.00			.									
P3-041	Wind coil MI-14-3	13APR05	20MAY05	0.00			■	-								
P3-051	VPI & ship MI-14-3	16JUN05	06JUL05	0.00				■	-							
P3-121	Receive casting MI-17-3	26NOV04	02DEC04	0.00			.									
P3-131	Wind coil MI-17-3	15APR05	24MAY05	0.00			■	-								
P3-141	VPI & ship MI-17-3	07JUL05	27JUL05	0.00				■	-							
<b>Type 3</b>																
P3-061	Receive casting BU-15-3	11MAR05	17MAR05	0.00				.								
P3-071	Wind coil BU-15-3	09AUG05	15SEP05	0.00				■	-							
P3-081	VPI & ship BU-15-3	20OCT05	09NOV05	0.00					■	-						
P3-151	Receive casting BU-18-3	01APR05	07APR05	0.00				.								
P3-161	Wind coil BU-18-3	01AUG05	01SEP05	0.00				■	-							
P3-171	VPI & ship BU-18-3	10NOV05	30NOV05	0.00					■	-						
171-001	Title I design WBS 142 Mod coil winding/assy	01OCT02*	30APR03	444,414.25												
171-011	Title II design WBS 142 Mod coil winding/assy	01MAY03	30SEP03	438,666.87												
171-021	In-house R&D (1/A)	01OCT02*	30SEP03	2,349,804.86												

EA/EM =60hr ; ORNLEM =3621hr ;  
 ORNLRM =161hr ;  
 EA/EM =60hr ; ORNLEM =3573hr ;  
 ORNLRM =159hr ;  
 EA/DM =1726hr ; EA/EM =2589hr ;  
 EM/SM =5683hr ; EM/TB =8592hr ;  
 ORNLEM =835hr ; 41=\$393k

Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	Fiscal Year															
					FY03	FY04	FY05	FY06	FY07	FY08	FY09									
171-031	Title III engr	01OCT03*	14MAR06	1,321,647.77																EA/DM =1,000hr ; EA/EM =5447hr ; ORNLEM =2524hr ;
171-037	Procurements (E/A F/B)	01OCT03	30SEP04	1,820,806.64																41=500\$k ; 4E = 1,111 ; 35=36\$k ;
171-041	Modular Coil Winding (18 coils)	01OCT04	30NOV05	2,966,171.26																EM/SM =10,051hr ; EM/TB =23,192hr ;
<b>143 - Modular Coil Local I&amp;C</b>																				
174-001	Title I design WBS 143 Mod coil local I&C	26FEB03	02MAY03	10,926.78																ORNLEM =97hr ;
174-011	Title II design WBS 143 Mod coil local I&C	01SEP03*	10OCT03	11,209.18																ORNLEM =97hr ;
174-015	Title III design	13OCT03	05JAN04	3,219.32																ORNLEM =26hr ;
174-037	Mod Coil Cooling System Procurement	13OCT03	02JAN04	6,170.56																41=04\$k ; em/sm=16
<b>15 - Structures</b>																				
<b>151 - Coil Support Structure</b>																				
162-001	Title I design WBS 151 coil sprt structure	03MAR03*	26SEP03	184,127.92																EA/DM =511hr ; EA/EM =283hr ; ORNLEM =794hr ;
162-011	Title II design WBS 151 coil sprt structure	29SEP03	25FEB04	196,275.43																EA/DM =511hr ; EA/EM =283hr ; ORNLEM =794hr ;
162-012	WBS 15 FDR		25FEB04	0.00																
162-031	Title III engr	05AUG04*	01FEB06	160,002.55																
162-037	Coil Support Assy Procurement (E/A F/B)	01OCT04*	29SEP05	1,146,902.42																41=500\$k ; 4E = 502 ; 35=00\$k ;
<b>153 - Support Structure Local I&amp;C</b>																				
163-001	Title I design WBS 153 sprt struct local I&C	03MAR03*	26SEP03	7,450.08																ORNLEM =66hr ;
163-011	Title II design WBS 153 sprt struct local I&C	29SEP03	07NOV03	8,123.98																ORNLEM =66hr ;
163-015	Title III design	10NOV03	27JAN04	3,466.96																ORNLEM =28hr ;
163-037	Support Structure I&C Procurement/Fab	10NOV03	30JAN04	5,326.56																41=04\$k ; em/sm=8
<b>16 - Coil Services</b>																				
<b>161 - LN2 Distribution</b>																				
<b>1611 - LN2 Manifolds &amp; Piping</b>																				
191-001	Title I design WBS 1611 LN2 manifolds&piping	01OCT03*	30DEC03	23,743.53																EA/EM =40hr ; ORNLEM =140hr ;
191-011	Title II design WBS 1611 LN2 manifolds&piping	31DEC03	23MAR04	47,487.06																EA/EM =80hr ; ORNLEM =281hr ;

Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	FY03	FY04	FY05	FY06	FY07	FY08	FY09
191-031	Title III engr	01OCT04*	23JUN05	8,912.28			EA/EM =68hr ; ORNLEM =58hr ;				
191-037	Procurement	01OCT04*	30DEC04	10,244.44			41=08\$k ;				
191-041	LN2 Manifolds & ppg Fab/assy	31DEC04	27JAN05	30,488.11			EM//SM =71hr ; EM//TB =284hr ;				
<b>1612 - LN2 Flow Control Fab Assy</b>											
192-001	Title I design WBS 1612 LN2 flow control assy	01OCT03*	30DEC03	10,878.75			EA/EM =15hr ; ORNLEM =69hr ;				
192-011	Title II design WBS 1612 LN2 flow control assy	31DEC03	24FEB04	10,878.75			EA/EM =15hr ; ORNLEM =69hr ;				
192-031	Title III engr	01OCT04*	14APR05	7,144.86			EA/EM =26hr ; ORNLEM =22hr ;				
192-037	Procurement	01OCT04*	25FEB05	36,359.16			41=30\$k ;				
192-041	LN2 Flow control Fab/assy	28FEB05	25MAR05	2,180.20			EM//SM =20hr ;				
<b>1613 - LN2 Local I&amp;C</b>											
193-001	Title I design WBS 1613 LN2 local I&C	01OCT03*	30DEC03	3,268.85			ORNLEM =26hr ;				
193-011	Title II design WBS 1613 LN2 local I&C	31DEC03	10FEB04	3,268.85			ORNLEM =26hr ;				
193-012	WBS 161 FDR		23MAR04	0.00							
193-031	Title III engr	01OCT04*	24FEB05	2,624.60			ORNLEM =20hr ;				
193-037	LN2 local I&C Procurement/Fab	01OCT04*	23DEC04	3,451.62			41=02\$k ; em//sm=6				
<b>162 - Electrical Leads</b>											
<b>1621 - TF Leads</b>											
132-001	Title I design WBS 1621 TF leads	01OCT03*	30DEC03	23,699.15			ORNLEM =191hr ;				
132-011	Title II design WBS 1621 TF leads	31DEC03	04FEB04	23,649.62			ORNLEM =191hr ;				
132-015	Title III design tf leads	01OCT04*	20DEC04	4,724.28			ORNLEM =36]hr ;				
132-037	TF Leads Procurement	01OCT04*	23DEC04	59,329.31			41=48\$k ;				
<b>1622 - PF Leads</b>											
146-001	Title I design WBS 1622 pf leads	01OCT03*	30DEC03	34,785.10			ORNLEM =253hr ; ORNLRM =20hr ;				
146-011	Title II design WBS 1622 pf leads	31DEC03	10FEB04	34,785.10			ORNLEM =253hr ; ORNLRM =20hr ;				
146-037	PF leads Procurement	01OCT04*	23DEC04	38,324.52			41=31\$k ;				
<b>1623 - Modular Coil Leads</b>											
173-001	Title I design WBS 1623 mod coil leads	01OCT03*	30DEC03	23,699.15			ORNLEM =191hr ;				

Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	FY03	FY04	FY05	FY06	FY07	FY08	FY09
173-011	Title II design WBS 1623 mod coil leads	31DEC03	10FEB04	23,699.15		■ ORNLEM =191hr ;					
173-015	Title III design mod coil leads	11FEB04*	05MAY04	5,324.26		■ ORNLEM =43hr ;					
173-037	Modular Coil Leads Procurement/Fab	01OCT04*	23DEC04	81,054.52		— ■ 41=48\$ ;em//sm=202					
<b>17 - Cryostat and Base Support Structure</b>											
<b>171 -Cryostat</b>											
<b>1711 - Cryostat Shell and Structure</b>											
151-001	Title I design WBS 1711 cryostat shell & struct	01OCT03*	03MAR04	30,849.66	— ■ EA/EM =20hr ; ORNLEM =223hr ;						
151-002	Balance of machine core concurrent PDR IC		03MAR04	0.00		▼					
151-011	Title II design WBS 1711 cryostat shell & struct	04MAR04	02NOV04	62,163.80	— ■ EA/EM =40hr ; ORNLEM =447hr ;						
151-012	Title II design WBS 1711 cryostat shell & struct		11NOV04	0.00		■					
151-031	Title III engr	12JUL05*	26JUN06	19,659.78			■ EA/EM =34hr ; ORNLEM =102hr ;				
151-037	Cryostat Procurement (1/A)	12JUL05*	26DEC05	134,021.00			■ 41=106\$ ; 35=02\$ ;				
<b>1712 - Cryostat Thermal Insulation</b>											
152-001	Title I design WBS 1712 Cryostat therm insulatio	01OCT03*	03MAR04	5,975.48	■ EA/EM =15hr ; ORNLEM =29hr ;						
152-011	Title II design WBS 1712 Cryostat therm insulati	01OCT04*	28OCT04	6,269.72		■ EA/EM =15hr ; ORNLEM =29hr ;					
152-031	Title III engr	29OCT04	25NOV04	7,122.16		■ EA/EM =41hr ; ORNLEM =03hr ;					
152-037	Cryo Thermal Insulation Procurement	29OCT04	11NOV04	30,718.24			■ 41=22\$ ; 35=02\$ ;				
152-041	Cryostat insulation Fab/assy	12NOV04	25NOV04	4,360.40			■ EM//SM =40hr ;				
<b>1713 - Cryostat/Vacuum Vessel Boots</b>											
153-001	Title I design WBS 1713 cryostat/vac vsl boots	01OCT03*	03MAR04	20,957.70	■ EA/EM =15hr ; ORNLEM =150hr ;						
153-011	Title II design WBS 1713 cryostat/vac vsl boots	01OCT04*	28OCT04	22,148.55		■ EA/EM =15hr ; ORNLEM =150hr ;					
153-031	Title III engr	29OCT04	25NOV04	7,122.16		■ EA/EM =41hr ; ORNLEM =03hr ;					
153-037	VV/Cryostat Boots Procurement	29OCT04	11NOV04	66,330.90			■ 41=54\$ ;				
153-041	Cryostat/VV boots Fab/assy	12NOV04	25NOV04	4,360.40			■ EM//SM =40hr ;				
<b>1714 - Cryostat Temperature Control/Heating</b>											
154-001	Title I design WBS 1714 cryostat temp control	01OCT03*	03MAR04	11,423.56	■ EA/EM =15hr ; ORNLEM =73hr ;						
154-011	Title II design WBS 1714 cryostat temp control	01OCT04*	01NOV04	12,043.84		■ EA/EM =15hr ; ORNLEM =73hr ;					
154-031	Title III engr	02NOV04	10JAN05	4,006.70		■ EA/EM =18hr ; ORNLEM =08hr ;					

Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	FY03	FY04	FY05	FY06	FY07	FY08	FY09
154-037	Procurement	02NOV04	27DEC04	33,165.45			41=27\$K ;				
154-041	Cryo Temp Cntrl/Heating Fab/assy	28DEC04	10JAN05	1,744.16			EM/SM =16hr ;				
<b>1715 - Cryostat Local I&amp;C</b>											
155-001	Title I design WBS 1715 cryostat local I&C	01OCT03*	03MAR04	10,351.35		ORNLEM =84hr ;					
155-011	Title II design WBS 1715 cryostat local I&C	01OCT04*	11NOV04	10,970.83			ORNLEM =84hr ;				
155-037	Cryo Local I&C Procurement	12NOV04	03FEB05	2,321.58			41=02\$K ;				
<b>172 - Base Support Structure</b>											
161-001	Title I design WBS 172 base support struct	29SEP03	01MAR04	48,732.63		EA/DM =120hr ; EA/EM =76hr ; ORNLEM =196hr ;					
161-011	Title II design WBS 172 base support struct	02MAR04	03JUN04	48,787.84		EA/DM =120hr ; EA/EM =76hr ; ORNLEM =196hr ;					
161-031	Title III engr	01OCT04*	28APR05	42,926.16			EA/EM =60hr ; ORNLEM =252hr ;				
161-037	Machine Base&supports Procurement	01OCT04*	03FEB05	296,336.64			41=238\$K ; 35=02\$K ;				
<b>18 - Field Period Assembly</b>											
<b>181 - Field Period Assembly Planning/Oversight</b>											
<b>1811 - Planning Prior to Field Period Assmby</b>											
711.010	LOE FY03	01OCT02*	30SEP03	39,165.00			ea/em=125;ea/dm=200				
711.020	LOE FY04	01OCT03*	30SEP04	30,283.50			ea/em=125;ea/dm=100				
711.030	LOE FY05	01OCT04*	30SEP05	103,651.00			ea/em=500;ea/dm=200				
711.040	LOE FY06	03OCT05*	02OCT06	22,178.90			ea/dm=200				
<b>1812 - Oversight of Field Period Assembly</b>											
714A.020	LOE FY06	03OCT05*	02OCT06	341,490.13			em/em=1726;em/sm=432				
<b>182 - TFTR Test Cell Area preparations</b>											
611B.001	Preliminary Design	01APR03*	31JUL03	7,075.00			ea/dm=40; em/em=20;				
611B.005	Final Design	01AUG03	23MAR04	7,280.66			ea/dm=40; em/em=20;				
611B.010	Lab Fab/Assy/Installation	24MAR04	23MAR05	29,995.77			em/sm=40; em/tb=240;41=5.6k				
721.010	Area preparations	01OCT04*	20DEC04	92,593.44			em/sm=144; em/tb=960				



Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	FY03	FY04	FY05	FY06	FY07	FY08	FY09
<b>183 - Receive, Inspect, and Test Coils</b>											
722.010	Receive/Inspect TF & Mod Coils	01JUN04*	01JUN06	38,952.37							
<b>184 - Receive, Inspect, and Test VV</b>											
724.010	Receive/Inspect VV	09FEB05	26OCT05	51,682.37							
<b>185 - Assemble Field Periods</b>											
P1-176	Field Period assembly Prelim Design	30MAY03*	03MAR04	0.00							
P1-178	Field Period assembly Final Design	04MAR04	01SEP04	0.00							
P1-179	Field Period assembly FDR		01SEP04	0.00							
<b>Period #1</b>											
P1-180	Attach cooling tubes & Insul to VV 1st Period	16FEB05	08MAR05	0.00							
P1-181	Assemble 1st. Field Period - coils/VV	01APR05	10JAN06	0.00							
P1-191	Position and weld port assemblies	11JAN06	31JAN06	0.00							
P1-201	Bakeout vessel segment to 150 degrees C	01FEB06	07FEB06	0.00							
P1-211	Perform vacuum leak check of welded assemblies	08FEB06	21FEB06	0.00							
P1-221	Prepare field period for shipment	22FEB06	28FEB06	0.00							
P1-231	Ship 1st. Field period	01MAR06	03MAR06	0.00							
P1-241	Field period 1 ready for installation	06MAR06	06MAR06	0.00							
<b>Period #2</b>											
P2-180	Attach cooling tubes & Insul to VV 2nd Period	22JUN05	12JUL05	0.00							
P2-181	Assemble 2nd. Field Period- coils/ VV	13JUL05	20FEB06	0.00							
P2-191	Position and weld port assemblies	21FEB06	13MAR06	0.00							
P2-201	Bakeout vessel segment to 150 degrees C	14MAR06	20MAR06	0.00							
P2-211	Perform vacuum leak check of welded assemblies	21MAR06	03APR06	0.00							
P2-221	Prepare field period for shipment	04APR06	10APR06	0.00							
P2-231	Ship 2nd. Field period	11APR06	13APR06	0.00							
P2-241	Field Period 2 ready for installation	14APR06	14APR06	0.00							

Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	FY03	FY04	FY05	FY06	FY07	FY08	FY09
<b>Period #3</b>											
P3-180	Attach cooling tubes & Insul to VV 3rd Period	26OCT05	15NOV05	0.00				-			
P3-181	Assemble 3rd. Field Period - coils/ VV	16NOV05	26APR06	0.00							
P3-191	Position and weld port assemblies	27APR06	17MAY06	0.00							
P3-201	Bakeout vessel segment to 150 degrees C	18MAY06	25MAY06	0.00							
P3-211	Perform vacuum leak check of welded assemblies	26MAY06	08JUN06	0.00							
P3-221	Prepare field period for shipment	09JUN06	15JUN06	0.00							
P3-231	Ship 3rd. Field Period	16JUN06	20JUN06	0.00							
P3-241	3rd. Period ready for installation	21JUN06	21JUN06	0.00							
725.001	Assemble Field Period #1 (summary task)	01APR05	06MAR06	259,703.17							
725.101	Assemble Field Period #2 (summary task)	13JUL05	13APR06	226,548.18							
725.201	Assemble Field Period #3 (summary task)	16NOV05	20JUN06	228,553.60							
<b>186 - Tooling Design and Fabrication</b>											
713A.010	Final Design Tooling	01OCT03*	01JUN04	172,949.20							
713A.020	Lab Fab/Assy/Installation	02JUN04	31JAN05	145,990.20							
713A.030	Tooling,assy fixtures,misc equipt	02JUN04	29SEP06	277,540.67							
713A.040	General procurements	02JUN04	29SEP06	18,923.23							
713A.050	Welding tools, materials & equipt	02JUN04	29SEP06	50,461.94							
<b>187 - Measurement Systems</b>											
740.010	Final Design Measurement systems	01OCT03*	01JUN04	80,669.92							
740.020	Lab Fab/Assy/Installation	02JUN04	31JAN05	48,684.80							
740.030	Procured Hardware/Material	02JUN04	31JAN05	30,416.75							

Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	Fiscal Year							
					FY03	FY04	FY05	FY06	FY07	FY08	FY09	
<b>2 - Plasma Heating, Fueling &amp; Vac Systems</b>												
<b>21 - Fueling Systems</b>												
<b>211 - Gas Fueling Systems</b>												
211-001	Prelim Design	01OCT02*	30SEP03	1,533.50	EM//EM =10hr ;							
211-005	Final Design	01OCT03	30SEP05	6,480.00	EM//EM =40hr ;							
211-010	Design Gas Handling HW	03JAN05*	02JAN06	4,394.29	EM//sM =40hr ;							
211-015	Design PLC Controls	03JAN05*	02JAN06	26,593.13	EE//SM =240hr ;							
211-020	Design support during Installation (Title III)	03OCT05	30MAR07	5,109.60	EM//EM =30hr ;							
211-025	Install Gas Handling HW	03JAN06*	01JAN07	83,414.75	EM//SM =40hr ;41=60\$k ;							
211-030	Install PLC	03JAN06*	01JAN07	9,090.97	EE//SM =80hr ;							
211-035	Integr System Test	02JAN07*	02JUL07	9,124.00	EM//SM =40hr ; EE//SM =40hr ;							
<b>22 - Torus Vacuum Pumping Systems</b>												
<b>220 - Torus Vacuum Pumping System</b>												
220-001	Prelim Design	01OCT02*	30SEP03	6,134.00	EM//EM =40hr ;							
220-010	Final Design	01OCT03	30SEP04	15,935.00	EM//EM =100hr ;							
220-013	PLC Design & Drafting for Pumping Sys	03JAN05*	02JAN06	61,477.59	EE//SM =320hr ; EA//DM =240hr ;							
220-015	Title III Design support	03JAN05*	02JUL07	121,106.38	EM//EM =100hr ; 41=80\$k ;							
220-020	Maint/Repair mech pumping sys	03JAN05*	02JAN06	8,788.57	EM//SM =80hr ;							
220-025	Electr/Mech Fab & Installation	03JAN06	28JUL06	67,726.40	EE//SM =320hr ; EM//SM =280hr ;							
220-030	Integr System Test	31JUL06	26SEP06	27,155.20	EM//EM =160hr ;							
<b>23 - Wall Conditioning Systems</b>												
<b>231 - Glow Discharge Cleaning System</b>												
231-001	Prelim Design	01OCT02*	30SEP03	4,600.50	EM//EM =30hr ;							
231-010	Final Design	01OCT04*	30SEP05	21,411.76	EM//EM =40hr ; EM//SM =136hr ;							
231-015	Design/Fab Pwr Supplies & PLC cntrls	03OCT05	29SEP06	48,051.92	EE//SM =424hr ;							
231-020	Title III Design	03OCT05	30MAR07	1,703.20	EM//EM =10hr ;							

Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	FY03	FY04	FY05	FY06	FY07	FY08	FY09
231-025	Install Cables	03OCT05	29SEP06	17,606.10					EE//SM =80hr ; 41=07\$K ;		
231-030	Integr Systems test	02OCT06	30MAR07	11,442.40					EM//EM =40hr ; EE//SM =40hr ;		
<b>25 - Neutral Beam Injection System</b>											
<b>251 - NB Systems Recommissioning</b>											
250-0201	Clean, hi-pot and test Accel rectifier	01OCT02*	30SEP03	32,771.20					EE//SM =320hr ;		
250-0301	AC Power maint. Pole Transformers	01OCT02*	30SEP03	16,385.60					EE//SM =160hr ;		
250-0401	Accel Rectifier Electronics startup	01OCT02*	30SEP03	65,542.40					EE//SM =640hr ;		
250-0501	Rehab Mods, Crowbars, Fault Detectors	01OCT02*	30SEP03	68,226.00					EE//SM =200hr ; EE//EM =320hr ;		
250-0601	Drafting: Refurbishment	01OCT03*	30MAR07	224,985.60					EA//DM =2,080hr ;		
250-0701	Repair water leak in East source	01OCT04*	30SEP05	4,360.40					EM//SM =40hr ;		
250-0801	Fabricate and install all new filaments	03OCT05*	02OCT06	4,494.58					EM//SM =40hr ;		
250-0901	Replace calorimeter bearings and cables	01OCT04*	30SEP05	17,441.60					EM//SM =160hr ;		
250-1001	Maint. and reinstall cryogenic transfer sys	01OCT04*	30SEP05	8,720.80					EM//SM =80hr ;		
250-1201	Maintenance and repair of vacuum sys	01OCT04*	30SEP05	4,398.00					EE//SM =40hr ;		
250-1301	Water system maintenance and calib.	01OCT04*	30SEP05	8,796.00					EE//SM =80hr ;		
250-1401	Maint. & calib. of Auxiliary Pwr Supplies	01OCT04*	30SEP05	4,398.00					EE//SM =40hr ;		
250-1501	Upgrade,maint,calib telemetry,optical links&cntr	01OCT04*	30SEP05	17,592.00					EE//SM =160hr ;		
250-1601	Design PLC& perform oper test& calibr of PLC	01OCT04*	30SEP05	140,736.00					EE//SM =1,280hr ;		
250-1701	Fabr, install, test Main & Front Box N2 Cryopane	01OCT04*	30SEP05	148,253.60					EM//SM =1,360hr ;		
250-1801	Subsystem integrated testing	02OCT06*	30MAR07	2,061.72					EE//SM =18hr ;		
250-2101	Prelim Design-Sys Eng & Work Planning: Refurbish	01OCT02*	30SEP03	11,936.00					EE//EM =80hr ;		
250-2111	Final Design-Sys Eng & Work Planning: Refurbishm	01OCT03*	30SEP05	37,826.41					EE//EM =240hr ;		
250-2121	Fab/Install-Sys Eng & Work Planning: Refurbishme	03OCT05*	30MAR07	26,513.07					EE//EM =160hr ;		
250-2131	Sys Eng & Work Planning Procedures	03OCT05*	02OCT06	13,210.14					EE//EM =80hr ;		
250-3201	EAD analysis: platform support capability	01OCT02*	30SEP03	3,060.00					EA//EM =20hr ;		
250-7001	M&S during Refurbishment	01OCT03*	30SEP05	357,694.41					41=294\$K ;		
250-7002	M&S support services during refurbishment	01OCT03*	30SEP05	31,997.83					41=26.3\$K ;		

Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	FY03	FY04	FY05	FY06	FY07	FY08	FY09
<b>252 - NB Installation &amp; Test</b>											
250-3101	Prelim Dsn -Sys Eng &Work Planning: Installation	01OCT02*	30SEP03	11,936.00		EE//EM =80hr ;					
250-3111	Final Dsn-Sys Eng &Work Planning: Installation	01OCT03*	30SEP05	37,826.41				EE//EM =240hr ;			
250-3121	Fab/Install-Sys Eng &Work Planning: Installation	03OCT05*	30MAR07	13,256.53					EE//EM =80hr ;		
250-3301	Fab BL alignment measurement fixt, obtain BL bas	03OCT05*	02OCT06	906.68					EE//SM =08hr ;		
250-3401	Fab bellows/elec break section of transition duc	03OCT05*	02OCT06	8,989.17					EM//SM =80hr ;		
250-3501	Perform alignment measurements	03OCT05*	02OCT06	906.68					EE//SM =08hr ;		
250-3601	Carpenter prep platform for base plate	03OCT05*	02OCT06	1,797.83					EM//SM =16hr ;		
250-3701	Relocate base plate to NCSX location	03OCT05*	02OCT06	7,253.42					EE//SM =64hr ;		
250-3801	Lift NB from Refurb Location to NCSX	03OCT05*	02OCT06	5,440.06					EE//SM =48hr ;		
250-3901	Enclose platform around base plate	03OCT05*	02OCT06	3,595.67					EM//SM =32hr ;		
250-4001	Engineer new Junction Box	03OCT05*	02OCT06	26,420.28					EE//EM =160hr ;		
250-4101	Fabricate and Install new Junction Box	03OCT05*	02OCT06	18,133.54					EE//SM =160hr ;		
250-4201	Hi-potting cable run and fixing problems	03OCT05*	02OCT06	9,066.77					EE//SM =80hr ;		
250-4301	Install Cable Trays	03OCT05*	02OCT06	36,267.08					EE//SM =320hr ;		
250-4401	Pulling heavy cables from Arc Room to Junction B	03OCT05*	02OCT06	72,534.17					EE//SM =640hr ;		
250-4501	Install welding cables Junction Box to Ion Sourc	03OCT05*	29SEP06	9,066.40					ee//sm=80		
250-4601	Connect BL to new foreline/exhaust manifold.	03OCT05*	29SEP06	3,595.52					em//sm=32		
250-4701	New PLC:Test with Vacuum system	03OCT05*	29SEP06	3,626.56					ee//sm=32		
250-4801	New Cryolines: Connect beamlines	03OCT05*	29SEP06	3,626.56					ee//sm=32		
250-4901	Crogenic Sys Controls: connect & test	03OCT05*	29SEP06	3,626.56					ee//sm=32		
250-5001	Pneumatic Air Sys :connect beamlines	03OCT05*	29SEP06	1,813.28					ee//sm=16		
250-5101	Water System	03OCT05*	29SEP06	26,966.40					em//sm=240		
250-5201	Fab & Install Water cooled aperture	03OCT05*	29SEP06	13,599.60					ee//sm=120		
250-5301	New PLC: Test Water system controls	03OCT05*	29SEP06	1,813.28					ee//sm=16		
250-5401	Install NB Diagnostic Control System	03OCT05*	30MAR07	1,819.73					ee//sm=16		
250-5601	Drafting: Installation	01OCT03*	30MAR07	51,919.75					EA//DM =480hr ;		
250-7003	M&S during installation	03OCT05*	02OCT06	28,644.92					41=21.8\$k ;		

Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	FY03	FY04	FY05	FY06	FY07	FY08	FY09
250-7004	M&S during installation	03OCT05*	29SEP06	85,659.76							

Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	FY03	FY04	FY05	FY06	FY07	FY08	FY09
<b>3 - Diagnostics</b>											
<b>31 - Magnetic Diagnostics</b>											
310-001	Preliminary Design wbs 114 mag diag	03MAR03*	30SEP04	35,432.71							
310-010	Final Design wbs 114 mag diag	01OCT04	27APR05	207,880.80							
310-015	Fab/Assembly/Installation	03OCT05*	08JUN06	380,960.40							
310-020	Fabricate Integrator Modules	03OCT05*	31MAR06	197,070.00							
310-025	Misc. Mag Diag Procurements	03OCT05*	31MAR06	91,440.48							
<b>35 - Profile Diagnostics</b>											
350-001	Preliminary Design	01JUN05*	30DEC05	8,121.23							
350-010	Final Design	02JAN06	30JUN06	65,180.20							
350-015	Fab/Assy/Installation	03JUL06	30MAR07	146,043.51							
<b>36 - Edge and Divertor Diagnostics</b>											
361-001	Preliminary Design	03OCT05*	03MAY06	18,275.90							
361-010	Final Design	04MAY06	15SEP06	78,476.40							
361-015	Fab/Assy/Installation	18SEP06	16FEB07	210,494.01							
<b>38 - Electron Beam (EB) Mapping</b>											
380-001	Preliminary Design	03OCT05*	03MAY06	34,588.60							
380-010	Final Design	04MAY06	22SEP06	145,648.40							

Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	FY03	FY04	FY05	FY06	FY07	FY08	FY09
380-015	Fab/Assy/Installation	25SEP06	16FEB07	360,848.72							
<b>39 - Diagnostics Integration</b>											
390-001	LOE Support FY03	01OCT02*	30SEP03	58,868.16							
390-010	LOE Support FY04	01OCT03*	30SEP04	61,168.64							
390-015	LOE Support FY05	01OCT04*	30SEP05	168,820.70							
390-020	LOE Support FY06	03OCT05*	02OCT06	174,017.41							
390-025	LOE Support FY07	02OCT06*	30MAR07	87,984.43							

R///RM2 =320hr ; EE//EM =80hr ;  
 EC//EM =40hr ; EM//EM =280hr ;  
 EE//SM =200hr ; EM//SM =390hr ;  
 41=129\$k ;

R///RM2 =416hr ;

R///RM2 =416hr ;

R///RM2 =416hr ; EM//EM =416hr ;  
 EA//DM =345hr ;

R///RM2 =416hr ; EM//EM =416hr ;  
 EA//DM =345hr ;

R///RM2 =208hr ; EM//EM =208hr ;  
 EA//DM =173hr ;



Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	Fiscal Year							
					FY03	FY04	FY05	FY06	FY07	FY08	FY09	
<b>4 - Electrical Power Systems</b>												
<b>41 - AC Power</b>												
<b>411 - Auxiliary AC Power Systems</b>												
411-001	Test Cell AC Power Distrib - Prelim Dsn	01JAN03*	31DEC03	24,196.59	EE//EM =80hr ; EA//DM =120hr ;							
411-011	Test Cell AC Power Distrib - Final Dsn	01JAN04*	08APR05	25,235.60	EE//EM =80hr ; EA//DM =120hr ;							
411-021	Test Cell AC Power Distrib - Procurements	01JUL04*	30DEC05	66,078.56	41=53\$k ;							
411-031	Test Cell AC Power Distrib - Installation	15APR05*	02JAN07	71,337.21	EE//EM =80hr ; EE//SM =80hr ; ea/dm=80hr ; EE//TB =240hr ; EM//TB =240hr ;							
411-041	Test Cell AC Power Distrib - Commission	01JUN06*	29DEC06	39,937.68	EE//EM =48hr ; EE//SM =80hr ; EE//TB =160hr ; ea/dm=80							
411-101	Ex Test Cell AC Pwr Distrib - Prelim Dsn	01JAN03*	31DEC03	9,669.76	EE//EM =40hr ; EA//DM =36hr ;							
411-111	Ex Test Cell AC Pwr Distrib - Final Dsn	01JAN04*	08APR05	12,617.80	EE//EM =40hr ; EA//DM =36hr ;							
411-121	Ex Test Cell AC Pwr Distrib - Procurements	01JUL04*	30JUN06	11,315.86	41=09\$k ;							
411-131	Ex Test Cell AC Pwr Distrib - Installation	27APR05*	02OCT06	60,388.21	EE//EM =120hr ; EE//SM =160hr ; EE//TB =120hr ; EM//TB =120hr ; ea/dm=160							
411-141	Ex Test Cell AC Pwr Distrib - Commission	01JUN06*	30NOV06	38,969.45	EE//EM =80hr ; EE//SM =80hr ; EE//TB =160hr ; ea/dm=24							
411-201	Standby Pwr f/Cryo Sys - Prelim Dsn	01JAN03*	31DEC03	5,442.02	EE//EM =20hr ; EA//DM =24hr ;							
411-211	Standby Pwr f/Cryo Sys - Final Dsn	01JAN04*	12SEP05	5,703.32	EE//EM =20hr ; EA//DM =24hr ;							
411-221	Standby Pwr f/Cryo Sys - Procurements	01JUL04*	01MAR06	19,936.33	41=16\$k ;							
411-231	Standby Pwr f/Cryo Sys - Installation	15APR05*	31AUG06	30,686.02	EE//EM =40hr ; EE//SM =80hr ; EE//TB =80hr ; EM//TB =80hr ; ea/dsm=16							
411-241	Standby Pwr f/Cryo Sys - Commission	03APR06*	02OCT06	23,333.74	EE//EM =40hr ; EE//SM =40hr ; EE//TB =120hr ; ea/dm=16							
411-301	Grounding - Prelim Dsn	01JAN03*	31DEC03	5,442.02	EE//EM =20hr ; EA//DM =24hr ;							
411-311	Grounding - Final Dsn	01JAN04*	30SEP05	5,705.85	EE//EM =20hr ; EA//DM =24hr ;							
411-321	Grounding - Procurements	01FEB05*	31OCT06	6,417.74	41=05\$k ;							
411-331	Grounding - Installation	03JAN05*	01JAN07	30,692.66	EE//EM =40hr ; EE//SM =80hr ; EE//TB =80hr ; EM//TB =80hr ; ea/dm=80							
411-341	Grounding - Commission	03JUL06*	01JAN07	9,754.83	EE//EM =16hr ; EE//SM =16hr ; EE//TB =40hr ; ea/dm=16							
<b>412 - Experimental AC Power Systems</b>												
412-001	D-Site Pulsed AC Pwr Distrib - Prelim Dsn	01JAN03*	31DEC03	4,227.75	EE//EM =20hr ; EA//DM =12hr ;							
412-011	D-Site Pulsed AC Pwr Distrib - Final Dsn	01JAN04*	30SEP05	4,432.75	EE//EM =20hr ; EA//DM =12hr ;							

Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	FY03												FY04												FY05												FY06												FY07												FY08												FY09											
412-021	D-Site Pulsed AC Pwr Distrib - Procurements	01JUL04*	27JUN06	6,284.95													41=5\$K ;																																																																							
412-031	D-Site Pulsed AC Pwr Distrib - Installation	03JAN05*	30AUG06	17,321.99													EE//EM =16hr ; EE//SM =64hr ; EE//TB =40hr ; EM//TB =40hr ; ea/dm=8																																																																							
412-041	D-Site Pulsed AC Pwr Distrib - Commission	03JUL06*	01JAN07	11,102.53													EE//EM =24hr ; EE//SM =24hr ; EE//TB =40hr ; ea/dm=8																																																																							
<b>42 - AC/DC Converters</b>																																																																																								
<b>422 - D-Site AC/DC Converters</b>																																																																																								
422-041	Coil Pwr Supplies - Commission	03APR06*	02OCT06	14,574.79													EE//EM =40hr ; 41=0.50\$K ; EE//SM =40hr ; EE//TB =32hr ;																																																																							
<b>43 - DC Systems</b>																																																																																								
<b>431 - C-Site DC Systems</b>																																																																																								
431-001	Coil DC Cabling to DLS - Prelim Dsn	01JAN03*	31DEC03	26,436.05	EE//EM =68hr ; EA//DM =160hr ;																																																																																			
431-011	Coil DC Cabling to DLS - Final Dsn	01JAN04	31AUG05	27,697.84	EE//EM =68hr ; EA//DM =160hr ;																																																																																			
431-021	Coil DC Cabling to DLS - Procurements	01JUL04*	30JUN06	82,731.49	41=66\$K ;																																																																																			
431-031	Coil DC Cabling to DLS - Installation	10MAY05*	31AUG06	60,765.36	EE//EM =120hr ; EE//SM =120hr ; EE//TB =60hr ; EM//TB =60hr ; ea/dm=160																																																																																			
431-101	DC Cabling to Coils in TC - Prelim Dsn	01JAN03*	31DEC03	22,084.93	EE//EM =68hr ; EA//DM =117hr ;																																																																																			
431-111	DC Cabling to Coils in TC - Final Dsn	01JAN04	02JAN06	23,287.65	EE//EM =68hr ; EA//DM =117hr ;																																																																																			
431-121	DC Cabling to Coils in TC - Procurements	01JUL04*	28JUL06	84,128.03	41=67\$K ;																																																																																			
431-131	DC Cabling to Coils in TC - Installation	15APR05*	31AUG06	41,604.50	EE//EM =80hr ; EE//SM =80hr ; EE//TB =40hr ; EM//TB =40hr ; ea/dm=117																																																																																			
<b>432 - D-to-C Site DC Systems</b>																																																																																								
432-001	D to C Site DC Cabling - Prelim Dsn	01JAN03*	01APR04	21,173.63	EE//EM =88hr ; EA//DM =77hr ;																																																																																			
432-011	D to C Site DC Cabling - Final Dsn	02APR04*	06OCT04	21,680.67	EE//EM =88hr ; EA//DM =77hr ;																																																																																			
432-021	Dc Cabling to C-Site - 1000mcm 5kvcable	02APR04	02JAN06	143,442.01	41=119\$K ;																																																																																			
432-022	Dc Cabling to C-Site - misc procurements	01JUL04*	31MAR06	15,491.12	41=12\$K ;																																																																																			
432-031	Dc Cabling to C-Site - Installation Supports	01APR04*	12APR06	438,285.60	EE//EM =120hr ; 41=315\$K ; EE//SM =80hr ; EE//TB =60hr ; EM//TB =60hr ; ea/dm=77																																																																																			
432-032	Dc Cabling to C-Site - Installation Cable	02MAY05*	24JUL06	691,286.25	41=500\$K ; 4E = 45.6																																																																																			

Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	FY03												FY04												FY05												FY06												FY07												FY08												FY09											
<b>433 - D-Site DC Systems</b>																																																																																								
433-001	DC Cabling D-Site - Prelim Dsn	01JAN03*	30SEP03	27,558.40	[Gantt bar]												EE//EM =88hr ; EA//DM =144hr ;																																																																							
433-011	DC Cabling D-Site - Final Dsn	01OCT03*	02JAN06	29,266.40	[Gantt bar]												EE//EM =88hr ; EA//DM =144hr ;																																																																							
433-021	DC Cabling D-Site - Procurements	01JUL04*	29AUG06	126,783.12	[Gantt bar]												41=101\$K ;																																																																							
433-031	DC Cabling D-Site - Installation	21APR05*	02OCT06	58,997.64	[Gantt bar]												EE//EM =120hr ; EE//SM =120hr ; EE//TB =60hr ; EM//TB =60hr ; ea//dm=14																																																																							
433-101	DC Current Limiting Reactors - Prelim Dsn	01JAN03*	20FEB04	7,783.87	[Gantt bar]												EE//EM =32hr ; EA//DM =29hr ;																																																																							
433-111	DC Current Limiting Reactors - Final Dsn	01MAR04*	30DEC05	8,195.17	[Gantt bar]												EE//EM =32hr ; EA//DM =29hr ;																																																																							
433-121	DC Current Limiting Reactors - Procurements	01MAR05*	30MAY06	49,663.93	[Gantt bar]												41=39\$K ;																																																																							
433-131	DC Current Limiting Reactors - Installation	27APR05*	30JUN06	31,709.92	[Gantt bar]												EE//EM =48hr ; 41=06\$K ; EE//SM =48hr ; EE//TB =52hr ; EM//TB =52hr ; ea//dm=19																																																																							
433-141	DC Current Limiting Reactors - Commission	01JUN06*	30NOV06	24,590.73	[Gantt bar]												EE//EM =48hr ; EE//SM =48hr ; EE//TB =104hr ; ea//dm=19																																																																							
433-201	Coil Pwr Supplies TF - Prelim Dsn	01JAN03*	31DEC03	6,550.65	[Gantt bar]												EE//EM =24hr ; EA//DM =29hr ;																																																																							
433-211	Coil Pwr Supplies TF- Final Dsn	01JAN04*	13JAN06	6,912.01	[Gantt bar]												EE//EM =24hr ; EA//DM =29hr ;																																																																							
433-231	Coil Pwr Supplies TF- Installation	10MAY05*	02JAN07	28,742.13	[Gantt bar]												EE//EM =16hr ; 41=15\$K ; EE//SM =40hr;ea//dm=19																																																																							
433-241	Coil Pwr Supplies TF- Commission	01JUN06*	30NOV06	5,744.30	[Gantt bar]												EE//EM =8hr ; EE//SM =8hr ; EE//TB =16hr ;ea//dm=19																																																																							
433-251	Coil Pwr Supplies OH PS - Prelim Dsn	01JAN03*	31DEC03	6,550.65	[Gantt bar]												EE//EM =24hr ; EA//DM =29hr ;																																																																							
433-261	Coil Pwr Supplies OH PS- Final Dsn	01JAN04*	02JAN06	6,907.42	[Gantt bar]												EE//EM =24hr ; EA//DM =29hr ;																																																																							
433-271	Coil Pwr Supplies OH PS- Installation	01JUN05*	24OCT06	28,651.97	[Gantt bar]												EE//EM =16hr ; 41=15\$K ; EE//SM =40hr;ea//dm=19																																																																							
433-281	Coil Pwr Supplies OH PS- Commission	01JUN06*	30NOV06	5,744.30	[Gantt bar]												EE//EM =8hr ; EE//SM =8hr ; EE//TB =16hr ;ea//dm=19																																																																							
433-321	Isolating Switch - Procurements	03JUN03*	04MAY05	157,293.90	[Gantt bar]												41=130\$K ;																																																																							
433-331	Isolating Switch - Installation	01JUN05*	24JUL06	108,762.96	[Gantt bar]												EE//EM =120hr ; 41=50\$K ; EE//SM =160hr ; EE//TB =40hr ; EM//TB =40hr ;																																																																							
<b>44 - Control and protection Systems</b>																																																																																								
<b>441 - Electrical Interlocks</b>																																																																																								
441-001	C-Site Interlocks - Prelim Dsn	01APR03*	01APR04	49,813.73	[Gantt bar]												EE//EM =220hr ; EA//DM =160hr ;																																																																							
441-011	C-Site Interlocks - Final Dsn	02APR04	07JUL05	51,790.01	[Gantt bar]												EE//EM =220hr ; EA//DM =160hr ;																																																																							
441-021	C-Site Interlocks - Procurements	01JUL04*	02MAY06	37,517.32	[Gantt bar]												41=30\$K ;																																																																							

Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	Schedule Guidance											
					FY03	FY04	FY05	FY06	FY07	FY08	FY09					
441-031	C-Site Interlocks - Installation	01JUN05*	12JUL06	180,651.08												EE//EM =264hr ; EE//SM =320hr ; EE//TB =500hr ; EM//TB =500hr ; ea//dm=160
441-101	D-to-C Site Interlocks - Prelim Dsn	01APR03*	30MAR04	9,761.46												EE//EM =40hr ; EA//DM =36hr ;
441-111	D-to-C Site Interlocks - Final Dsn	31MAR04	08APR05	10,117.49												EE//EM =40hr ; EA//DM =36hr ;
441-121	D-to-C Site Interlocks - Procurements	01JUL04*	31MAR06	6,246.42												41=05\$k ;
441-131	D-to-C Site Interlocks - Installation	01JUN05*	10AUG06	27,120.56												EE//EM =40hr ; EE//SM =40hr ; EE//TB =80hr ; EM//TB =80hr ; ea//dm=24
441-141	D-to-C Site Interlocks - Commission	01JUN06*	30NOV06	20,820.17												EE//EM =40hr ; EE//SM =40hr ; EE//TB =80hr ; ea//dm=24
441-201	D-Site Interlocks - Prelim Dsn	01APR03*	30MAR04	26,921.59												EE//EM =132hr ; EA//DM =67hr ;
441-211	D-Site Interlocks - Final Dsn	31MAR04	23SEP05	28,043.00												EE//EM =132hr ; EA//DM =67hr ;
441-221	D-Site Interlocks - Procurements	01JUL04*	30JUN06	17,552.15												41=14\$k ;
441-231	D-Site Interlocks - Installation	01JUN05*	24JUL06	83,992.71												EE//EM =120hr ; EE//SM =200hr ; EE//TB =220hr ; EM//TB =220hr ; ea//dm=45
441-241	D-Site Interlocks - Commission	01JUN06*	30NOV06	41,306.47												EE//EM =80hr ; EE//SM =80hr ; EE//TB =160hr ; ea//dm=45
<b>442 - Kirk Key Interlocks</b>																
442-001	Kirk Keys - Prelim Dsn	01APR03*	30MAR04	12,803.54												EE//EM =60hr ; EA//DM =36hr ;
442-011	Kirk Keys - Final Dsn	31MAR04*	20JUN05	13,304.83												EE//EM =60hr ; EA//DM =36hr ;
442-021	Kirk Keys - Procurements	02AUG04*	31MAY06	12,571.26												41=10\$k ;
442-031	Kirk Keys - Installation	01APR05*	28SEP06	34,522.81												EE//EM =24hr ; EE//SM =40hr ; EE//TB =140hr ; EM//TB =140hr ; ea//dm=
442-041	Kirk Keys - Commission	03JUL06*	01JAN07	24,349.31												EE//EM =40hr ; EE//SM =40hr ; EE//TB =120hr ; ea//dm=24
<b>443 - Real Time Control Systems</b>																
443-001	Develop Control Algorithms	03OCT05*	02OCT06	39,630.42												EE//EM =240hr ;
<b>444 - Instrument Systems</b>																
444-001	DC Current Transducers - Prelim Dsn	01JAN03*	31DEC03	5,442.02												EE//EM =20hr ; EA//DM =24hr ;
444-011	DC Current Transducers - Final Dsn	01JAN04	24SEP04	5,599.24												EE//EM =20hr ; EA//DM =24hr ;
444-021	DC Current Transducers - Procurements	01JUL04*	30DEC05	178,356.38												41=144\$k ;
444-031	DC Current Transducers - Installation	03JAN05*	08MAR06	37,308.01												EE//EM =32hr ; EE//SM =64hr ; EE//TB =140hr ; EM//TB =140hr ; ea//dm=16

Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	FY03												FY04												FY05												FY06												FY07												FY08												FY09											
444-041	DC Current Transducers - Commission	01JUN06*	30NOV06	18,944.40																																																																									EE//EM =24hr ; EE//SM =24hr ; EE//TB =120hr ; ea/dm=16											
444-101	DC Shunts - Prelim Dsn	01JAN03*	31DEC03	5,442.02	■												■												■												■												■												■												EE//EM =20hr ; EA//DM =24hr ;											
444-111	DC Shunts - Final Dsn	01JAN04	08APR05	5,675.71																																																																									EE//EM =20hr ; EA//DM =24hr ;											
444-121	DC Shunts - Procurements	01JUL04*	02MAY06	80,143.80																																																																									41=64\$k ;											
444-131	DC Shunts - Installation	03JAN05*	30JUN06	37,458.94																																																																									EE//EM =32hr ; EE//SM =64hr ; EE//TB =140hr ; EM//TB =140hr ; ea/dm=16											
444-141	DC Shunts - Commission	01JUN06*	30NOV06	18,944.40																																																																									EE//EM =24hr ; EE//SM =24hr ; EE//TB =120hr ; ea/dm=16											
444-201	Signal Conditioning - Prelim Dsn	01JAN03*	31DEC03	23,522.93	■												■												■												■												■												■												EE//EM =140hr ; EA//DM =24hr ;											
444-211	Signal Conditioning - Final Dsn	01JAN04	08APR05	24,533.45																																																																									EE//EM =140hr ; EA//DM =24hr ;											
444-221	Signal Conditioning - Procurements	01JUL04*	31MAR06	11,243.55																																																																									41=09\$k ;											
444-231	Signal Conditioning - Installation	03JAN05*	30JUN06	31,615.26																																																																									EE//EM =40hr ; EE//TB =140hr ; EM//TB =140hr ; ea/dm=16											
444-241	Signal Conditioning - Commission	01JUN06*	30NOV06	23,072.62																																																																									EE//EM =80hr ; EE//SM =40hr ; EE//TB =40hr ; ea/dm=16											
444-301	DC Potential transducers - Prelim Dsn	01JAN03*	31DEC03	10,884.03	■												■												■												■												■												■												EE//EM =40hr ; EA//DM =48hr ;											
444-311	DC Potential transducers - Final Dsn	01JAN04*	05JUL05	11,386.10																																																																									EE//EM =40hr ; EA//DM =48hr ;											
444-321	DC Potential transducers - Procurements	01JUL04*	30JUN06	25,146.35																																																																									41=20\$k ;											
444-331	DC Potential transducers - Installation	10JUN05*	30JUN06	38,065.06																																																																									EE//EM =40hr ; EE//SM =40hr ; EE//TB =140hr ; EM//TB =140hr ; ea/dm=32											
444-341	DC Potential transducers - Commission	01JUN06*	30NOV06	20,724.98																																																																									EE//EM =24hr ; EE//SM =24hr ; EE//TB =120hr ; ea/dm=32											
<b>445 - Coil protection Systems</b>																																																																																								
445-001	Overload Protection - Prelim Dsn	01OCT03*	24MAR04	43,499.20	■												■												■												■												■												■												EE//EM =200hr ; EA//DM =120hr ;											
445-011	Overload Protection - Final Dsn	25MAR04*	23MAR05	44,190.93																																																																									EE//EM =200hr ; EA//DM =120hr ;											
445-021	Overload Protection - Procurements	01JUL04*	31MAR06	49,971.35																																																																									41=40\$k ;											
445-031	Overload Protection - Installation	30SEP05*	30JUN06	70,341.97																																																																									EE//EM =64hr ; EE//SM =240hr ; EE//TB =140hr ; EM//TB =140hr ; ea/dm=80											
445-041	Overload Protection - Commission	01JUN06*	30NOV06	32,770.76																																																																									EE//EM =80hr ; EE//SM =32hr ; EE//TB =80hr ; ea/dm=80											
<b>446 - Ground Fault Monitoring System</b>																																																																																								
445-101	Ground Fault Protection - Prelim Dsn	01OCT03*	30MAR04	8,699.84	■												■												■												■												■												■												EE//EM =40hr ; EA//DM =24hr ;											
445-111	Ground Fault Protection - Final Dsn	31MAR04*	11APR05	8,847.57																																																																									EE//EM =40hr ; EA//DM =24hr ;											

Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	FY03	FY04	FY05	FY06	FY07	FY08	FY09
445-121	Ground Fault Protection - Procurements	01JUL04*	29JUN06	7,543.25							
445-131	Ground Fault Protection - Installation	03JAN05*	30JUN06	20,537.26							
445-141	Ground Fault Protection - Commission	01JUN06*	30NOV06	13,511.47							
<b>45 - Power System Design and Integration</b>											
<b>451 - System Design and Interfaces</b>											
451-001	Design Drawings,changes,as-builts	01JAN03*	30MAY07	255,587.87							
451-011	PDR Power Systems	01JAN03*	01SEP03	9,976.00							
451-021	FDR D-Site	01DEC03*	22DEC03	10,365.60							
451-031	FDR C-Site	01JUN04*	21JUN04	10,365.60							
451-041	FDR Cabling D-Site	01JAN04*	31DEC04	10,452.65							
451-051	FDR Cabling C-Site	03MAY04*	01MAR05	10,537.60							
451-061	FDR DC Transmission	01APR03*	29JUN04	10,209.04							
451-071	FDR AC Auxiliaries & Grounding	01JAN03*	31JUL03	9,976.00							
451-081	Calculations	01OCT03*	02OCT06	52,096.17							
<b>452 - Electrical Systems Support</b>											
452-001	Diagnostics AC Pwr Distrib - Prelim Dsn	01APR03*	30MAR04	25,696.47							
452-011	Diagnostics AC Pwr Distrib - Final Dsn	01APR04*	08JUN06	27,123.99							
452-021	Diagnostics AC Pwr Distrib - Procurements	01JUL04*	29SEP06	11,372.15							
452-031	Diagnostics AC Pwr Distrib - Installation	30SEP05*	02OCT06	90,668.10							
452-041	Diagnostics AC Pwr Distrib - Commission	01JUN06*	30NOV06	43,914.79							
452-101	Diagnostics Sensor Cabling - Prelim Dsn	01APR03*	30MAR04	39,725.78							
452-111	Diagnostics Sensor Cabling - Final Dsn	01APR04*	05AUG05	41,336.86							
452-121	Diagnostics Sensor Cabling - Procurements	01JUL04*	02MAY06	22,540.45							
452-131	Diagnostics Sensor Cabling - Installation	07OCT05*	04JUL06	123,445.60							
452-141	Diagnostics Sensor Cabling - Commission	01JUN06*	30NOV06	47,475.95							

Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	FY03											
					FY04		FY05		FY06		FY07		FY08		FY09	
<b>453 - System Testing (PTP's)</b>																
453-001	Procedures	03JAN05*	02JAN06	43,177.78	EE//EM =160hr ; EA/DM =160hr ;											
453-111	PTP's & ISTEP's	03APR06*	01JAN07	89,590.07	EE//EM =288hr ; EE//SM =80hr ; EE//TB =376hr ;											
453-112	PTP's & ISTEP's Test Equipt	03APR06*	01JAN07	33,255.82	41=25\$k ;											
<b>46 - FCPC Building Modifications</b>																
611A.010	Lab Fab/Assy/Installation	24MAR04*	27SEP04	21,407.83	em//sm=40 ;EM//TB=144; 41=5K											

Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	FY03	FY04	FY05	FY06	FY07	FY08	FY09
<b>5 - Central I&amp;C Systems</b>											
<b>51 - TCP/IP Infrastructure Systems</b>											
51-001	Preliminary Design (Title I)	06MAR06*	05MAY06	12,412.00							
51-005	Final Design (Title II)	08MAY06	06JUN06	24,824.00							
51-010	Lab Fab/Assy/Installation (Title III)	07JUN06	08FEB07	389,058.15							
51-015	Hardware/Material	07JUN06	10NOV06	126,439.82							
51-016	Ethernet hubs and port modules	07JUN06	10NOV06	153,240.29							
51-2003	Ldlevel of Effort FY03	01OCT02*	29SEP03	3,364.56							
51-2004	Level of Effort FY04	01OCT03*	28SEP04	3,496.08							
51-2005	Level of Effort FY05	01OCT04*	29SEP05	3,612.48							
<b>52 - Central Instrumentation &amp; Control</b>											
52-001	Preliminary Design (Title I)	01DEC05*	03APR06	77,575.00							
52-005	Final Design (Title II)	04APR06	01AUG06	239,763.52							
52-010	Lab Fab/Assy/Installation (Title III)	02AUG06	15MAR07	347,662.64							
52-015	Hardware/Material	02AUG06	03NOV06	148,489.14							
52-016	I/O Purchases	02AUG06	03NOV06	154,215.63							
52-2003	Level of Effort FY03	01OCT02*	29SEP03	3,364.56							
52-2004	Level of Effort FY04	01OCT03*	28SEP04	3,496.08							
52-2005	Level of Effort FY05	01OCT04*	29SEP05	3,612.48							
<b>53 - Data Acquisition &amp; Facility Computing</b>											
53-001	Preliminary Design (Title I)	01DEC05*	03APR06	49,648.00							
53-005	Final Design (Title II)	04APR06	01AUG06	56,686.52							
53-010	Lab Fab/Assy/Installation (Title III)	02AUG06	15MAR07	165,237.64							

EC//EM =80hr ;

EC//EM =160hr ;

EC//EM =850hr ; EE//SM =2,096hr ;  
EA//DM =160hr ;

41=95\$k ;

41=116\$k ;

EC//EM =24hr ;

EC//EM =24hr ;

EC//EM =24hr ;

EC//EM =500hr ;

EC//EM =1,500hr ; 35=04\$k ;

EC//EM =1,351hr ; EE//SM =1,200hr ;

41=112\$k ;

41=116\$k ;

EC//EM =24hr ;

EC//EM =24hr ;

EC//EM =24hr ;

EC//EM =320hr ;

EC//EM =320hr ; 35=04\$k ;

EC//EM =1,060hr ;



Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	FY03	FY04	FY05	FY06	FY07	FY08	FY09
53-015	Hardware/Material	02AUG06	03NOV06	208,950.19					■ 41=156.9\$K ;		
53-016	I/O Purchases	02AUG06	03NOV06	149,820.88					■ 41=113\$K ;		
53-2003	Level of Effort FY03	01OCT02*	29SEP03	3,364.56	■	■ EC//EM =24hr ;					
53-2004	Level of Effort FY04	01OCT03*	28SEP04	3,496.08		■	■ EC//EM =24hr ;				
53-2005	Level of Effort FY05	01OCT04*	29SEP05	3,612.48			■	■ EC//EM =24hr ;			
<b>54 - Facility Timing &amp; Synchronization</b>											
54-001	Preliminary Design (Title I)	03OCT05*	17FEB06	99,296.00				■	■ EC//EM =640hr ;		
54-005	Final Design (Title II)	20FEB06	22MAY06	77,991.26				■	■ EC//EM =480hr ; 35=02\$K ;		
54-010	Lab Fab/Assy/Installation (Title III)	23MAY06	05MAR07	428,738.58			EC//EM =1,043hr ; EC//SM =700hr ; EC//ES =1,280hr ;	■			
54-015	Hardware/Material	23MAY06	09OCT06	64,256.33					■ 41=49\$K ;		
54-2003	Level of Effort FY03	01OCT02*	29SEP03	3,364.56	■	■ EC//EM =24hr ;					
54-2004	Level of Effort FY04	01OCT03*	28SEP04	3,496.08		■	■ EC//EM =24hr ;				
<b>55 - Real Time Plasma &amp; Power Supply Control Sys</b>											
55-001	Preliminary Design (Title I)	01MAR06*	01JUN06	24,824.00					■ EC//EM =160hr ;		
55-005	Final Design (Title II)	02JUN06	01SEP06	24,824.00					■ EC//EM =160hr ;		
55-010	Lab Fab/Assy/Installation (Title III)	04SEP06	15MAR07	242,974.64			EC//EM =823hr ; EC//SM =1,200hr ;	■			
55-015	Hardware/Material	04SEP06	19OCT06	71,229.95					■ 41=53\$K ;		
55-2003	Level of Effort FY03	01OCT02*	29SEP03	3,364.56	■	■ EC//EM =24hr ;					
55-2004	Level of Effort FY04	01OCT03*	28SEP04	3,496.08		■	■ EC//EM =24hr ;				
55-2005	Level of Effort FY05	01OCT04*	29SEP05	3,612.48			■	■ EC//EM =24hr ;			
<b>56 - Central Safety Interlock Systems</b>											
56-001	Preliminary Design (Title I)	01MAR06*	01JUN06	24,824.00					■ EC//EM =160hr ;		
56-005	Final Design (Title II)	02JUN06	29SEP06	24,824.00					■ EC//EM =160hr ;		

Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	FY03												FY04												FY05												FY06												FY07												FY08												FY09																																			
56-010	Lab Fab/Assy/Installation (Title III)	02OCT06	15MAR07	225,622.50													EC//EM =710hr ; EC//SM =1,200hr ;																																																																																															
56-015	Hardware/Material	02JUN06	10NOV06	123,357.12																																					41=93\$k ;																																																																							
56-2003	Level of Effort FY03	01OCT02*	29SEP03	3,364.56	EC//EM =24hr ;																																																																																																											
56-2004	Level of Effort FY04	01OCT03*	28SEP04	3,496.08													EC//EM =24hr ;																																																																																															
56-2005	Level of Effort FY05	01OCT04*	29SEP05	3,612.48																									EC//EM =24hr ;																																																																																			
<b>57 - Control Room Facility</b>																																																																																																																
57-001	Preliminary Design (Title I)	01MAY06*	01JUN06	12,412.00																																					EC//EM =80hr ;																																																																							
57-005	Final Design (Title II)	02JUN06	01SEP06	12,412.00																																					EC//EM =80hr ;																																																																							
57-010	Lab Fab/Assy/Installation (Title III)	04SEP06	06OCT06	172,182.94																																					EC//EM =400hr ; EC//SM =1,000hr ;												41=12\$k ;																																																											
57-015	Hardware/Material	04SEP06	06OCT06	112,634.96																																					41=85\$k ;																																																																							
57-2003	Level of Effort FY03	01OCT02*	29SEP03	3,364.56	EC//EM =24hr ;																																																																																																											
57-2004	Level of Effort FY04	01OCT03*	28SEP04	3,496.08													EC//EM =24hr ;																																																																																															
57-2005	Level of Effort FY05	01OCT04*	29SEP05	3,612.48																									EC//EM =24hr ;																																																																																			

Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	FY03												FY04												FY05												FY06												FY07												FY08												FY09											
<b>6 - Facility Systems</b>																																																																																								
<b>61 - Water Systems</b>																																																																																								
<b>612 - Neutral Beam Water Cooling System</b>																																																																																								
622.001	Preliminary design	02JAN06*	01MAY06	36,026.40																																																																																				
622.011	Final Design	02MAY06	24JUL06	22,448.80																																																																																				
622.021	Assembly/Fabrication/Installation	25JUL06	13NOV06	131,157.55																																																																																				
<b>613 - Vacuum Pumping Water Cooling System</b>																																																																																								
623.001	Preliminary design	03OCT05*	22DEC05	15,660.00																																																																																				
623.011	Final Design	23DEC05	16MAR06	11,224.40																																																																																				
632.021	Assembly/Fabrication/Installation	17MAR06	11MAY06	0.00																																																																																				
<b>614 - Bakeout Water System</b>																																																																																								
624.001	Preliminary design	12JUN06*	17AUG06	12,265.60																																																																																				
624.011	Final Design	18AUG06	28SEP06	12,265.60																																																																																				
624.021	Assembly/Fabrication/Installation	29SEP06	23NOV06	13,602.64																																																																																				
<b>615 - Diagnostic Water Cooling System</b>																																																																																								
625.001	Preliminary design	01FEB06*	21APR06	11,224.40																																																																																				
625.011	Final Design	24APR06	18JUL06	11,224.40																																																																																				
625.021	Assembly/Fabrication	19JUL06	12SEP06	15,289.66																																																																																				
<b>62 - Cryogenic Systems</b>																																																																																								
<b>621 - LN2-LHe Supply System</b>																																																																																								
631-001	Preliminary Design	02SEP04*	02MAR05	14,578.40																																																																																				
631-010	Final Design	03MAR05*	31AUG05	20,679.22																																																																																				
631-015	Fab/Assy/Installation	03APR06*	29SEP06	75,450.12																																																																																				
631-020	Procurement	03OCT05*	31MAR06	59,646.52																																																																																				

em/em=160; ea/dm=80  
em/em=80; ea/dm=80  
em/em=200; em/tb=535; 41=\$39.56k

em/em=40; ea/dm=80  
em/em=40; ea/dm=40  
em/em=80; em/tb=304; 41=\$21.00k

em/em=20; ea/dm=80  
em/em=20; ea/dm=80  
em/em=40; em/tb=42; 41=\$2.38k

em/em=40; ea/dm=40  
em/em=40; ea/dm=40  
em/em=40; em/tb=60; 41=\$2.7k

EM/EM =89hr ;  
EM/EM =89hr ; EA/DM =56hr ;  
EM/EM =89hr ; EM/SM =130hr ;  
EM/TB =554hr ;  
41=45\$K ;

Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	FY03	FY04	FY05	FY06	FY07	FY08	FY09
<b>622 - LN2 Coil Cooling Supply</b>											
632-001	Preliminary Design	01OCT03*	30MAR04	14,182.15							
632-010	Final Design	31MAR04*	28SEP04	26,675.35							
632-015	Fab/Assy/Installation	03APR06*	29SEP06	108,419.88							
632-020	Procurement	03OCT05*	31MAR06	112,724.04							
<b>623 - GN2 Cryostat Cooling System</b>											
633-001	Preliminary Design	04MAR04*	01SEP04	14,182.15							
633-010	Final Design	02SEP04*	02MAR05	23,139.96							
633-015	Fab/Assy/Installation	03OCT05*	31MAR06	180,225.08							
633-020	Procurement	03MAR05*	31AUG05	98,206.58							
<b>63 - Utility Systems</b>											
640.001	Preliminary design	28NOV05*	17FEB06	20,095.60							
640.011	Final Design	20FEB06	12MAY06	11,224.40							
640.021	Assembly/Fabrication	15MAY06	07JUL06	64,159.00							
<b>64 - Bakeout System</b>											
650.001	Preliminary Design	01OCT03*	01DEC03	38,022.00							
650.005	Final Design	02DEC03	18JUN04	108,908.80							
650.010	Lab Fab/Assy/Installation	21JUN04	17DEC04	259,241.63							
650.012	Procured Hardware/Material	21JUN04	18MAR05	155,728.26							
650.015	Procured Installation/Assy	01NOV06*	29DEC06	10,900.80							

Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	FY03	FY04	FY05	FY06	FY07	FY08	FY09
<b>65 - Facility Systems Integration</b>											
660.101	LOE FY03	01OCT02*	30SEP03	52,905.75		em//em=345					
660.102	LOE FY04	01OCT03*	30SEP04	54,975.75			em//em=345				
660.103	LOE FY05	01OCT04*	30SEP05	56,807.70				em//em=345			

Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	Schedule Guidance											
					FY03	FY04	FY05	FY06	FY07	FY08	FY09					
<b>7 - Test Cell Preparation and Machine Assy</b>																
<b>71 - Shield Wall Seismic Modifications</b>																
613.001	Preliminary Design	01APR03*	21MAY03	12,576.00	ea//em=56; ea//dm=40;											
613.005	Final Design	22MAY03	25JUL03	30,384.00	ea//em=120; ea//dm=120;											
613.010	Modify Test Cell Walls	28JUL03	26SEP03	337,196.36	eme//em=144; em//sm=532; em//tb=3500											
613.015	Procured Hardware/Material	28JUL03	26SEP03	95,370.40	#1=\$80k											
<b>72 - Control Room Refurbishment</b>																
611C.001	Preliminary Design	01OCT03*	30JAN04	53,497.38	ea//dm=288; em//em=60; ee//em=90											
611C.005	Final Design	02FEB04	22SEP04	58,277.88	ea//dm=288; em//em=90; ee//em=90											
611C.010	Lab Fab/Assy/Installation	23SEP04	22SEP05	112,637.50	em//sm=288;em//tb=432;em//em=30;ee//tb=496											
611C.015	Procured Hardware/Material	23SEP04	22SEP05	45,429.08	41=\$37k											
<b>73 - Platform Design &amp; Fabrication</b>																
712.010	Final Design	01OCT03*	31DEC03	53,542.00	em//em=140;ea//dm=300											
712.020	Lab Fab/Assy/Installation	01JAN04	02JUL04	93,374.20	ea//em=40;em//sm=90;em//tb=1000											
712.030	Procured Hardware/Material	01JAN04	02JUL04	42,174.65	41=\$35k											
<b>74 - Machine Assembly Planning and Oversight</b>																
<b>741 - Planning Prior to Machine Assembly</b>																
711A.010	LOE FY03	01OCT02*	30SEP03	39,165.00	ea//em=125;ea//dm=200											
711A.020	LOE FY04	01OCT03*	30SEP04	30,283.50	ea//em=125;ea//dm=100											
<b>742 - Construction Management</b>																
714.010	LOE FY05	01OCT04*	30SEP05	284,203.16	em//em=1726											

Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	FY03												FY04												FY05												FY06												FY07												FY08												FY09											
714.020	LOE FY06	03OCT05*	02OCT06	341,490.13																																																	em//em=1726;em//sm=432																																			
714.030	LOE FY07	02OCT06*	30MAR07	394,159.36																																																	em//em=1726;em//sm=864																																			
<b>75 - Test Cell and Basement Assembly Operations</b>																																																																																								
<b>750 - Test Cell &amp; Basement Assembly Operations</b>																																																																																								
730.1000	Begin Assembly Activities	03OCT05*		0.00																																																																																				
730.1020	Install & Level Support Base Plates	03OCT05	21OCT05	35,408.00																																																	em//sm=80; em//tb=320																																			
730.1030	Install/Level Machine Support Columns	24OCT05	25NOV05	53,112.00																																																	em//sm=120; em//tb=480																																			
730.1040	Install Platform	28NOV05	10FEB06	224,268.00																																																	41+\$20k; em//em=40;em//sm=432;em//tb=1728																																			
730.1050	Install Lighting,Fire Det/Supprs under platform	13FEB06	22SEP06	67,362.48																																																	41=\$6k;em//em=40;em//sm=80;em//tb=480																																			
730.1060	Install Lower Cryostat Floor	27DEC05	02JAN06	17,704.00																																																	em//sm=40; em//tb=160																																			
730.1070	Install Lower PF 3,4,5&6 into prelim position	03JAN06	09JAN06	17,704.00																																																	em//sm=40; em//tb=160																																			
730.1080	Install 1st Field Period Assembly	07MAR06	03APR06	17,704.00																																																	em//sm=40; em//tb=160																																			
730.1090	Install 2nd Field Period Assembly	17APR06	12MAY06	17,704.00																																																	em//sm=40; em//tb=160																																			
730.1100	Install 3rd Field Period Assembly	22JUN06	19JUL06	53,112.00																																																	em//sm=120; em//tb=480																																			
730.1110	Restore Shield Wall Area & complete platform	20JUL06	09AUG06	53,112.00																																																	em//sm=120; em//tb=480																																			
730.1120	Install Neutral Beams (WBS 250-5401?)	20SEP06*	07NOV06	0.00																																																																																				
730.1130	Make Final Vacuum Pump Connections to VV	20JUL06	02AUG06	35,408.00																																																	em//sm=80; em//tb=320																																			
730.1140	PTP Pumpdown & leak check VV (WBS 220-025)	03AUG06	16AUG06	44,580.80																																																	support labor em//em=40; em//sm=160; em//tb=240																																			
730.1150	Raise lower PF-3,4,5&6 coils into final position	17AUG06	21AUG06	11,065.00																																																	em//sm=25; em//tb=100																																			
730.1151	Install Trim Coils	17AUG06	06SEP06	58,476.00																																																	em//sm=300; em//tb=300																																			
730.1170	Install PF Solenoid into position (U/L 1&2 PF)	22AUG06	25AUG06	13,278.00																																																	em//sm=30; em//tb=120																																			
730.1175	Install Upper PF-3,4,5 & 6 coils	28AUG06	30AUG06	11,065.00																																																	em//sm=25; em//tb=100																																			
730.1180	Install Bus connections to coil sys (WBS 431-131	07SEP06	01NOV06	0.00																																																																																				
730.1185	Install External Cryostat Walls and Ceiling	31AUG06	13SEP06	0.00																																																																																				
730.1190	Connect Bakeout System (WBS 650.010)	02OCT06	10NOV06	0.00																																																																																				
730.1200	Connect Cryo System (WBS 633-015)	02OCT06	10NOV06	0.00																																																																																				
730.1210	Connect Cooling System (WBS 624.021)	14SEP06	25OCT06	0.00																																																																																				
730.1230	Complete Bus connections (WBS 4 to 6)	14SEP06	08NOV06	35,672.32																																																	em//sm=80; em//tb=320																																			

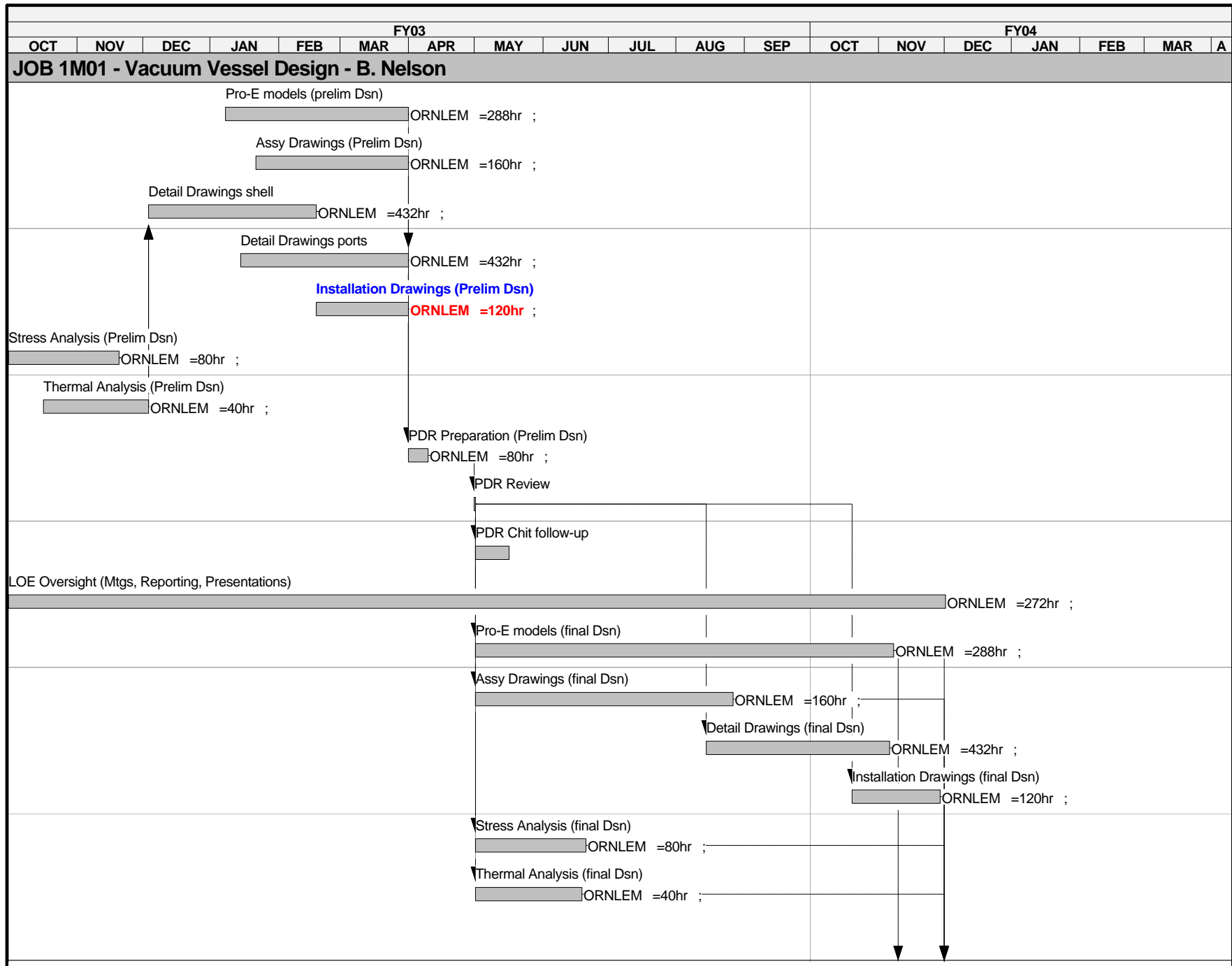
Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	FY03	FY04	FY05	FY06	FY07	FY08	FY09
730.1240	PTP Cryostat System Test	13NOV06	24NOV06	35,971.20					em//em=40; em//sm=80; em//tb=240		
730.1250	Power Tests	01JUN07	28JUN07	0.00					-		
730.9000	First Plasma		28JUN07*	0.00					▼		
<b>76 - Integrated Systems Testing</b>											
920.001	Final Design	01JUN06*	29DEC06	80,726.97					ee//em=240; em//em=240		
920.005	Lab Fab/Assy/Installation	01JAN07*	30APR07	408,144.00					em//em=672; ee//em=672; ee//sm=288; em//sm=288; ee//tb=672; em//tb=672		
<b>77 - Tooling Design and Fabrication</b>											
713.020	Lab Fab/Assy/Installation	04FEB04*	04OCT04	16,883.75					em//em=10; em//sm=42; em//tb=140		
713.030	Tooling, assy fixtures, misc equipt	04FEB04	03APR07	25,437.79					41=\$20k		
713.040	General procurements	04FEB04	03APR07	19,078.34					41=\$15k		
713.050	Welding tools, materials & equipt	04FEB04	03APR07	12,718.89					41=\$10k		



Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	FY03	FY04	FY05	FY06	FY07	FY08	FY09
<b>8 - Project Oversight and Support</b>											
<b>81 - Project Management and Control</b>											
<b>810 - Project Management &amp; Control</b>											
810.001	Project Management Office FY03	01OCT02*	29SEP03	690,202.58							
810.002	Project Management Office FY04	01OCT03*	28SEP04	637,646.34							
810.003	Project Management Office FY05	01OCT04*	29SEP05	619,138.10							
810.004	Project Management Office FY06	03OCT05*	29SEP06	634,261.44							
810.005	Project Management Office FY07	02OCT06*	30MAR07	332,185.72							
810.005X	Project Management Office FY07	02APR07*	21JUN07	166,092.86							
810.101	Project Management Office FY03	01OCT02*	29SEP03	77,399.40							
810.102	Project Management Office FY04	01OCT03*	28SEP04	83,208.60							
810.103	Project Management Office FY05	01OCT04*	29SEP05	87,433.07							
810.104	Project Management Office FY06	03OCT05*	29SEP06	65,099.57							
810.105	Project Management Office FY07	02OCT06*	30MAR07	35,477.34							
810.105X	Project Management Office FY07	02APR07*	26JUN07	17,738.67							
<b>82 - Project Engineering</b>											
<b>820 - Project Engineering</b>											
820.001	Proj engr,Sys Integr.,Designers, Deputy PM FY03	01OCT02*	29SEP03	466,557.80							
820.002	Proj engr,Sys Integr.,Designers, Deputy PM FY04	01OCT03*	28SEP04	470,053.20							
820.003	Proj engr,Sys Integr.,Designers, Deputy PM FY05	01OCT04*	29SEP05	481,774.20							
820.004	Proj engr,Sys Integr.,Designers, Deputy PM FY06	03OCT05*	29SEP06	490,963.85							

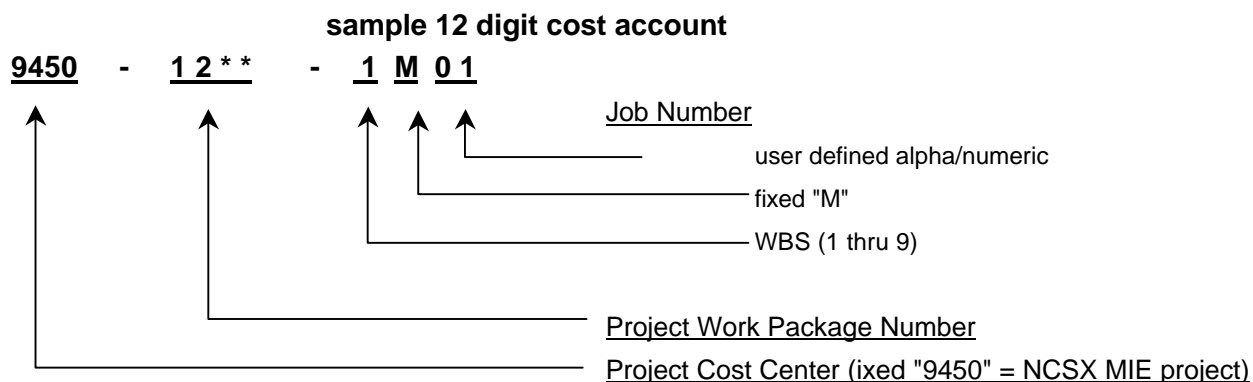
Activity ID	Activity Description	Early Start	Early Finish	Budgeted Cost	FY03	FY04	FY05	FY06	FY07	FY08	FY09
820.005	Proj engr,Sys Integr.,Designers, Deputy PM FY07	02OCT06*	30MAR07	261,380.62		EA//EM =1,035hr ; EA//DM =690hr ; 35=04\$k ;					
820.005X	Proj engr,Sys Integr.,Designers, Deputy PM FY07	02APR07*	26JUN07	130,604.75		EA//EM =517hr ; EA//DM =345hr ; 35=02\$k ;					
820.101	Purchased Design Services FY03	01OCT02*	29SEP03	35,763.90		41=30\$k ;					
820.102	Purchased Design Services FY03	01OCT03*	28SEP04	36,149.70		41=30\$k ;					
<b>84 - Project Physics</b>											
<b>840 - Project Physics</b>											
840.201	Project Physics/Engr Analysis FY03	01OCT02*	29SEP03	235,977.16		R//RM2 =900hr ; EA//EM =520hr ; EE//EM =85hr ; 41=8\$k ; 35=4\$k					
840.202	Project Physics/Engr Analysis FY04	01OCT03*	28SEP04	112,572.16		R//RM2 =540hr ; EA//EM =175hr ; EE//EM =00hr ; 41=3\$k ; 35=01\$k ;					
840.203	Project Physics/Engr Analysis FY05	01OCT04*	29SEP05	32,783.25		R//RM2 =180hr ; EA//EM =00hr ; EE//EM =00hr ; 41=3\$k ; 35=01\$k ;					
840.204	Project Physics/Engr Analysis FY06	03OCT05*	29SEP06	33,890.83		R//RM2 =180hr ; EA//EM =00hr ; EE//EM =00hr ; 41=3\$k ; 35=01\$k ;					
840.205	Project Physics/Engr Analysis FY07	02OCT06*	30MAR07	20,441.06		R//RM2 =90hr ; EA//EM =00hr ; EE//EM =00hr ; 41=2\$k ; 35=02\$k ;					
840.205X	Project Physics/Engr Analysis FY07	02APR07*	26JUN07	10,220.53		R//RM2 =45hr ; EA//EM =00hr ; EE//EM =00hr ; 41=1\$k ; 35=01\$k ;					
840.301	Project Physics/Engr Analysis FY03	01OCT02*	05SEP03	67,710.30		ORNLRM = 270HRS; ORNLEM = 180HRS; ORNL35 = \$1.6K ORN41 = \$1.3k					
840.302	Project Physics/Engr Analysis FY04	01OCT03*	28SEP04	26,819.10		ORNLRM = 90HRS; ORNLEM = 90HRS					
840.303	Project Physics/Engr Analysis FY05	01OCT04*	29SEP05	0.00							
840.304	Project Physics/Engr Analysis FY06	03OCT05*	29SEP06	0.00							
840.305	Project Physics/Engr Analysis FY07	02OCT06*	30MAR07	1,766.53		ORN35 = \$1.6K					
840.305X	Project Physics/Engr Analysis FY07	02APR07*	26JUN07	883.26		ORN35 = \$.8K					

# ATTACHMENT C



# ATTACHMENT D

## Numbering Scheme



## Resource codes & rates

	FY03 estimating rate (loaded) \$/hr	<i>equivalent hours per FTE</i>
B//CB - PPPL Project Clerical	\$ 42.55	2080
EA//DM - PPPL Designer	\$ 97.73	1726
EA//EM - PPPL MED engineer	\$ 149.23	1726
EC//EM - PPPL Computer Engineer	\$ 136.74	1726
EC//ES - PPPL S/C Computer Engineer	\$ 136.74	1726
EC//SM - PPPL Computer Senior Tech	\$ 83.39	1726
EE//EM - PPPL Electrical engineer	\$ 145.53	1726
EE//SM - PPPL Electrical Senior Tech	\$ 99.89	1726
EE//TB - PPPL Electrical Technician	\$ 76.53	1726
EM//EM - PPPL FO&M Engineer	\$ 149.58	1726
EM//SM - PPPL FO&M Senior Tech	\$ 99.03	1726
EM//TB - PPPL FO&M Technician	\$ 72.77	1726
R//RM1 - PPPL Scientist pdg1	\$ 87.35	1788
R//RM2 - PPPL Scientist pdg2	\$ 138.03	1788
R//RM3 - PPPL Scientist pdg3		1788
ORNLEM - ORNL Engineer	ORNL TBD	1780
ORNLRM - ORNL Scientist	ORNL TBD	1780
PPPL MHX rate on first \$500k of a purchase =	36%	