

PrincetonUniversity Plasma Physics Laboratory
 PPPL COST PERFORMANCE REPORT WORKBREAKDOWN STRUCTURE

6/09/05

NCSX

**** Cumulative to date FY03, FY04 & FY05****

MAY FY05

	CUMULATIVE TO DATE (from 4/1/03) (k)								ECP30	EAC	UNDER (OVER)	Variance Explanation		EAC
	Budgeted Cost			VARIANCES					Budget			Schedule	Cost	Change from April Report
	BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI	Thru FY05	Thru FY05					
1 - Stellarator Core Systems	23,931	22,676	23,684	-1,254	.95	-1,007	.96	29,403	31,170	(1,767)				
12 Vacuum Vessel Systems	5,406	4,656	4,699	-751	.86	-43	.99	7,302	7,422	(120)				
CLOSED 1201 - Vacuum Vessel Prelim Dsn	424	424	424	0	1.00	0	1.00	424	424					
CLOSED 1202 - Vacuum Vessel R&D	1,791	1,791	1,771	0	1.00	21	1.01	1,791	1,771	21				
1203 - Vacuum Vessel Final Dsn	915	846	879	-69	.92	-33	.96	944	965	(21)	Final design tasks; Heater tape dsn, mag diag interface dwgs, thermal insulation. July 1st FDR IN JEOPARDY DUE TO MANPOWER.			
1204-VV Sys Procurements (non VVS)								257	65	192	Award of cooling tubing and manifolds now forecasted to slip into FY06.		VV tubing and manifolds now forecast for award in FY06. (-208)	
1206 - VV Field Weld Joint R&D	12	11	16	0	.96	-5	.71	19	17	2				
1250 - Vacuum Vessel Fabrication	2,265	1,583	1,609 (1)	-682	.70	-27	.98	3,867	4,180	(313)	Behind in fabricating the 120deg fixture and fabr of the production panels (1 month behind on FP#1 and 2 months behind on FP#2). However MTM is still forecastinmg 1st delivery by Nov 05 (?)	ORNL Title III oversight	Revised MTM forecast accurat. Forecasting cost of tooling this year even though being delivered in FY06. (+299)	
13 Conventional Coils	981	913	990	-68	.93	-78	.92	1,677	1,927	(250)				
1301 - TF Design	837	779	835	-59	.93	-57	.93	837	900	(63)	Successful conductor FDR held in May. Comprehensive FDR slipped another month to July 8th.	Underestimated Rushinski by factor of 3.		
1350 - TF Coil Fabr Prep	83	134	155	51	1.62	-21	.86	381	389	(8)		Techncian time for setting up fabr facility overan by factor of 2. ON WATCH LIST. SIGNIFICANT COST OVERUNS ANTICIPATED BASED ON EXPERIENCE WITH JOB 1412.		
1351 - TF Coil Fabrication	61			-61				459	638	(179)	LOE Title III oversight of the TF procurements and fabrication. Late start due to 2 month delay in the FDR.			
14 Modular Coils	15,030	14,639	15,450	-391	.97	-811	.95	17,135	18,461	(1,326)				
CLOSED 1401 - Mod Coil Prel.Dsn	303	303	304	0	1.00	-1	1.00	303	304	(1)				
CLOSED 1402 - Mod.Coil Analyses	239	239	239	0	1.00		1.00	239	239	(0)				
1403 - Modular Coil Final Design	2,837	2,625	2,739	-212	.93	-114	.96	3,141	3,227	(86)	FDR will be held by June 30th on components details. This will permit start of fabrication. HOWEVER,some assy drawings and analyses will not be completed until July.	Manpower under estimated.	Continued cost variances in MC design. (+73)	
CLOSED 1404-MCWF R&D & 1st Prod Casting	2,534	2,534	2,554	0	1.00	-20	.99	2,534	2,554	(20)				
CLOSED 1405-Mod Coil Winding R&D Prep	168	168	168		1.00	0	1.00	168	168	0				
CLOSED 1406 - Mod. Coil Winding	2,214	2,214	2,245	0	1.00	-31	.99	2,214	2,245	(31)				

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	1410 MC Twisted Racetrack Fabr	752	721	868	-31	.96	-147	.83	799	958	(159)	One month slip in the VPI operation (application of outer bag re-enforcement a.k.a cotton-candy)(UPDATE;successful VPI completed June 8th). Testing to be complete by July 5 and dissection by July 12th.	Unplanned overtime and time expended on developing a new approach for installing the outer bag re-enforcement.	Continued cost variances in TRC. (+76)
CLOSED	1407 -Mod Coil Winding Facility	2,523	2,523	2,546	0	1.00	-23	.99	2,523	2,546	(23)			
	1412 - Complete Winding Facilities	310	310	466	-1	1.00	-156	.67	310	511	(200)		Continued cost variance due to modifications and punch list tasks in response to experienced gained in TRC fab. (+89)	Continued cost variance due to modifications and punch list tasks in response to experienced gained in TRC fab. (+89)
	1408-Mod Coil Winding Supplies	308	309	347	1	1.00	-38	.89	596	714	(118)		Tom Meighan support (CC orders ?) not estimated.	
	1409 - Mod. Coil Test Stand	472	429	686	-43	.91	-257	.62	488	745	(257)	Ready for TRC testing by June 13th. Month slip but still supports TRC schedule due to slip in TRC fab.	Gettelfinger engr oversight underestimated by factor of 5. 2 mm of design support not estimated.	Continued cost variances in completion of test stand. (+72)
	1411-MCWF Fabrication S005242	2,296	2,236	2,265 (2)	-60	.97	-29	.99	3,420	3,914	(494)	Pattern B only 20% complete. Machining on C-1 continuing (65% complete). C-1 delivery now forecasted July 7th.		Revised forecast consistent with vendor forecast (+211). Maybe optimistic.
	1413 - Mod Coil Fracture Analysis	23	23	22	0	1.00	2	1.07	23	28	(5)			
	1451 - Mod Coil Winding	51	6	1	-44	.12	5	7.01	377	308	69	LOE winding oversight/supervision for winding prep delayed consistent with slippage in MCWF C-1 delivery, completion of TRC, and component fab.		Winding on C-1 to start later due to slip delivery (-51)
	15 Structures	35	35	34	0	1.00	1	1.03	35	34	1			
	1501 - Structures Design	35	35	34	0	1.00	1	1.03	35	34	1			
	16 16 - Coil Services													
	17 Cryostat and Base	194	189	272	-5	.97	-83	.69	241	318	(77)			
	1701-Cryost&Base Sprt Strct Dsn	194	189	272	-5	.97	-83	.69	241	318	(77)	PDR for Base support structure slipped from June 15 to July 15.	Designer support underestimated by factor of 2. 1 1/2 MM of analysis (Dahlgren) req'd but not estimated.	
	1751 - Cryostat Procurement													
	1752 - Base Support Structure Procure													
	18 Field Period Assembly	1,028	988	963	-39	.96	25	1.03	1,512	1,487	25			
CLOSED	1801-Field Period Assly	61	61	61	0	1.00	0	.99	61	61	(0)			
	1802 - FP Assy Oversight&Support	260	260	293	0	1.00	-33	.89	311	341	(30)		HP charging greater than the 75% budgeted plus OT to support the TRC fabrication.	

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	1803- FP Assy Toolg/Constructability	375	336	264	-39	.89	72	1.27	758	707	51	VV suprt fixture originally planned for mid-May. No forecast. Half period assy fix PDR planned for end may. Both behind on structural/seismic analysis and metrology layouts. Schedule improved from last month.			
	1804-FP Assy Measurement	331	331	345	0	1.00	-13	.96	382	378	4				
19	1901 - Stellarator Core Mngtt&Int	1,258	1,257	1,275	-1	1.00	-17	.99	1,502		1,521	(19)			
2	2 - Plasma Heating,Fueling & Vac	348	348	347	0	1.00	1	1.00	348	347	1				
	CLOSED 2001-VPS Gas& Cond Sys Oversight	64	64	63	0	1.00	1	1.01	64	63	1				
	CLOSED 2501 - Neutral Beam Refurbishment	284	284	284	0	1.00	0	1.00	284	284	0				
3	3 - Diagnostics	333	300	320	-33	.90	-20	.94	493	485	8				
31	3101 Magnetic Diagnostics	69	36	64	-33	.52	-28	.56	206	207	(1)	Fabrication of MC co-wound loops not yet started.	Engr ytd (Labik) double what was estimated for work scope completed. ON WATCH LIST. EARLY INDICATIONS OF SIGNIFICANT OVERRUN. Request Stratton to prep revised estimate.		
36	36 - Edge and Divertor Diagnosti								-	-					
38	38 - Electron Beam (EB) Mapping								-	-					
39	3901 - Diagnostics sys Integratic	264	264	256	0	1.00	8	1.03	287	278	8				
4	4 - Electrical Power Systems	462	374	373	-88	.81	1	1.00	614	610	4				
41	4101 - AC Power	81	81	81	0	1.00	1	1.01	81	81	1				
43	4301 - DC Systems	143	131	129	-11	.92	3	1.02	233	228	5				
44	4401 - Control & Protection	1	1	24	0	1.00	-23	.04	1	24	(23)				
45	4501 - Power Sys Dsn & Integr	236	159	138	-77	.67	20	1.15	298	276	22	Power systems design continues to slip. PDR now scheduled for July 15. RAKI HAS BEEN AVAILABLE ONLY 30% TO NCSX COMPARED TO 70% REQUESTED.			
46	4601 - FCPC Bldg Mods	1	1	1	0	1.02		1.00	1	1	(0)				
5	5 - Central I&C Systems	36	36	33	0	1.00	3	1.09	40	38	2				
58	5801 -Central I&C Integr	36	36	33	0	1.00	3	1.09	40	38	2				
6	6 - Facility Systems	24	24	24		1.00	0	1.01	24	24	0				
	61 - Water Systems														
	6163 - Facility Systems Support FY04	15	15	15		1.00	0	1.01	15	15	0				
	62 - Cryogenic Systems														
	63 - Utility Systems														
	CLOSED 6501 - Facility Systems Integratic	9	9	9		1.00	0	1.00	9	9					
7	7 - Test Cell Prep & Machine Assy	624	602	575	-22	.96	27	1.05	725	818	(93)				
	CLOSED 7101 - Shield Wall Modif	32	32	32	0	1.00		1.00	32	32	(0)				

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7201 - Control Room Walls&Floo	48			-48				48	8	40	On hold awaiting FED. The control room walls have been determined to be a GPP project.. The budgeted amount of \$39.6k will be redistributed TBD. No schedul impact.		Control room walls determined to be GPP instead of project funding.	
7301 - Platform Design &	7	66		59	9.12	66		70	154	(84)	Work on nut plates started ahead of plan.		Fabrication of platform accelerated (+84)	
7401 - TC Prep & Mach Assy Plai	537	504	543	-33	.94	-39	.93	575	624	(49)				
75 Machine Assembly								-	-					
76 7601 - Tooling Design & Fabricat								-	-					
8 - Project Oversight & Support	5,542	5,542	5,533		1.00	10	1.00	6,348	6,352	(5)				
81 Project Management and Control	2,535	2,535	2,545		1.00	-10	1.00	2,934	2,940	(6)				
8101 - Project Management & Control	1,724	1,724	1,737		1.00	-13	.99	1,969	1,971	(2)				
8102 - NCSX MIE Management ORNL	209	209	207		1.00	2	1.01	242	243	(1)				
8998 - Allocations	602	602	601		1.00	1	1.00	724	726	(2)				
82 Project Engineering	2,537	2,537	2,517		1.00	20	1.01	2,943	2,942	1				
8202 - Engr Mgmt & Sys Eng Support	1,419	1,419	1,394		1.00	25	1.02	1,634	1,616	18				
8203 - Design Integration	669	669	658		1.00	11	1.02	722	717	5				
8204 - Systems Analysis	401	401	413		1.00	-11	.97	490	495	(5)				
8205 - Dimensional Control Coord.	48	48	52		1.00	-4	.92	97	114	(17)				
84 Project Physics	470	470	470		1.00	0	1.00	470	470	(0)				
CLOSED 8401 - Project Physicis	324	324	324		1.00	1	1.00	324	324	1				
CLOSED 8402 - Project Physics MIE ORNL	146	146	146		1.00	-1	1.00	146	146	(1)				
85 - Integrated Systems Testing								-	-					
Subtotal	31,301	29,903	30,889	-1,398	.96	-986	.97	37,996	39,845	(1,849)				
Contingency/Management Reserve								3,259						
TOTAL PROJECT								41,255	39,845	1,410				
(1) Reflects add'l accrual of \$230k based on vendor's May earned value report														
(2) Reflects accrual reduction of \$293k based on vendor's May earned value report														
Thru FY2004	20,640	19,652	19,744	-988	0.95	-92	1.00							
Thru Oct	20,637	20,832	20,917	195	1.01	-85	1.00							
Thru NOVEMBER	21,812	21,906	22,158	94	1.00	-252	0.99	FORECAST PROJECT UNDRERUN FY05						
Thru DECEMBER	23,813	23,042	23,434	-771	0.97	-392	0.98							
Thru JANUARY (ecp-21)	25,866	24,310	24,639	-1556	0.94	-329	0.99							
Thru Feb (ecp-24)	26,637	25,856	26,285	-781	0.97	-429	0.98							
Thru Mar (ecp-29)	28,440	27,282	28,004	-1158	0.96	-722	0.97							
Thru Apr (ecp-30)	29,588	28,736	29,416	-852	0.97	-680	0.98					2,047		