

**PrincetonUniversity Plasma Physics Laboratory
PPPL COST PERFORMANCE REPORT WORKBREAKDOWN STRUCTURE**

NCSX

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

DECEMBER FY05

	CUMULATIVE TO DATE (from 4/1/03) (k)								Budget Thru FY05	TEC	EAC Incr.	Variance Explanation	
	Budgeted Cost			VARIANCES								Schedule	Cost
	BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI						
1 - Stellarator Core Systems	17,906	17,184	17,509	-722	.96	-325	.98	30,008	50,655	477			
12 Vacuum Vessel Systems	3,598	3,346	3,391	-252	.93	-45	.99	6,939	8,737				
1201 - Vacuum Vessel Prelim Dsn	424	424	424		1.00	0	1.00	424	424				
1202 - Vacuum Vessel R&D	1,769	1,769	1,771	0	1.00	-1	1.00	1,769	1,769				
1203 - Vacuum Vessel Final Dsn	689	629	720	-60	.91	-91	.87	770	770		Heating/cooling, I&C, Insulation, and vessel supports final design. FDR forecast for March 3rd (3 day slip) {SPI .94 last month}	? {CPI .89 last month}	
1204-VV Sys Procurements (non VVSA)								27	519				
1206 - VV Field Weld Joint R&D	11	10	7	-1	.89	3	1.40	210	210		A decision on the full size sample is pending completion of one more sample test. Impact on VVSA procurement not yet clear.		
1250 - Vacuum Vessel Fabrication	704	514	469	-190	.73	45	1.10	3,739	5,045		Procurement of the die and fixture materials are behind due to agreements with the material vendors. Although MTM is forecasting slippages in their upfront engineering for the dies and fixtures they are still project delivery of the first period by mid October 2005 (3 weeks later than contracted).		
13 Conventional Coils	618	509	546	-109	.82	-37	.93	1,501	4,441	-			
1301 - TF Design	618	509	546	-109	.82	-37	.93	738	738		PDR slip from Dec 15 to late January 25th due to CTD mat'l analysis and impact on current design. Kalish and Rushinski only able to devote 60% so far this year. {SPI .91 last month}	Scope of material testing increased due to geometry & insulation. No change in cost variance since last month	
1302 - PF and CS Design								140	228				
1303 - Trim coil Design									99				
1351 - TF Coil Procurement								623	1,595				
1352 - PF Coil Procurement									1,285				
1353 - CS Structure Procurement									258				
1354 - Trim Coil Procurement									146				
1355 - WBS 13 I&C Proc & Coil Assy									93				
14 Modular Coils	11,663	11,297	11,765	-366	.97	-468	.96	18,020	26,200	477			
1401 - Mod Coil Prel.Dsn	304	303	304	-1	1.00	-1	1.00	303	303				
1402 - Mod.Coil Analyses	239	239	239	0	1.00		1.00	239	239				
1403 - Modular Coil Final Design	2,282	2,106	2,154	-176	.92	-48	.98	2,676	2,676		Winding pack analysis and final design details for the type C production coil slipping. Two FRD's now planned; 2/15 for the cladding, WF and studs, and the second 3/15 for the balance of components. {SPI .95 last month}	? {CPI 1.00 last month}	

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	Budgeted Cost			VARIANCES								Schedule	Cost
	BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI						
1404-MCWF R&D & 1st Prod Casting	2,513	2,513	2,585	0	1.00	-72	.97	2,513	2,513	155	Cost plus contract scope completed.	Awaiting final closeout estimate from EIO. Forecast \$155k overrun relative to budget.Phil to provide estimate.	
1405-Mod Coil Winding R&D Prep	168	168	168		1.00	0	1.00	168	168				
1406 - Mod. Coil Winding	1,956	1,931	2,168	-25	.99	-237	.89	1,961	1,961	217	4 turn racetrack fatigue tests late but forecast to complete by mid-January. Job to be closed.	Final closeout estimate of \$2,178 (\$217 above budget) to be reflected in ECP-21	
1410 MC Twisted Racetrack Fabr	117	98	193	-19	.84	-95	.51	423	423	105	Slip in the cladding installation. Overtime authorized and schedule re-worked to support a March 24 completion (Joule Milestone date of 3/31/05). (SPI .97 last month)	Trial winding and straight tee specimen requiring more tech labor than planned. \$105 k overrun forecast. (CPI .56 last month)	
1407 -Mod Coil Winding Facility	2,564	2,565	2,546	1	1.00	19	1.01	2,565	2,565				
1412 - Complete Winding Facilities	127	252	249	125	1.98	3	1.01	303	303			3rd winding line components stopped (not req'd for flat funding plan). Credit taken for uncompleted work on 3rd line. (CPI .65 last month)	
1408-Mod Coil Winding Supplies	53	45	68	-8	.86	-22	.67	766	1,722		First delivery of production conductor received! Insulation on order not yet received (no impact).	Pre-existing cost variance from FY04. FY05 work on track. (CPI .58 last month)	
1409 - Mod. Coil Test Stand	428	383	394	-45	.90	-10	.97	486	486		Installation of the cryo line still no progress during Dec. Installation of the closed loop LN2 sys begun.Facility available for TRF by april 10th (supports TRC fab schedule with 2 wks float). Production facility ready by May 10th (7 month ahead of need). (SPI .91 last month)	Unplanned drafting required. (CPI 1.02 last month)	
1411-MCWF Fabrication S005242	912	693	696	-219	.76	-3	.99	4,622	8,378		Procurement of materials and pattern work behind contract plan. First casting still forecast for mid-May as planned.		
1431 - Modular Coil Local I&C									120				
1451 - Mod Coil Winding								994	4,342				
15 Structures	54	54	28	0	1.00	26	1.92	224	1,381	-			
1501 - Structures Design	54	54	28	0	1.00	26	1.92	224	224				
1550 - Structures Procurement									1,156				
16 - Coil Services									1,036				
17 Cryostat and Base	194	164	125	-30	.85	39	1.31	305	1,321	-			
1701-Cryostat&Base Sprt Strct Dsn	194	164	125	-30	.85	39	1.31	305	481		No progress made in the last two months toward on the prelim design. The PDR is forecast to slip again from Dec to now February. Gettelfinger availability has been only 65% to the NCSX project total ytd. To be re-scheduled as part of a designer load leveling exercise. (SPI .88 last month)	Addition scope added; VV spacer fixture design and fabrication WBS 173. Cost estimate TBD.	

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	Budgeted Cost		ACWP	VARIANCES				Budget				TEC	EAC	Schedule	Cost
	BCWS	BCWP		Sch Var	SPI	Cst Var	CPI								
1751 - Cryostat Procurement										509					
1752 - Base Support Structure Procurement										330					
18 Field Period Assembly	673	732	608	60	1.09	125	1.21	1,485	5,118	-					
1801-Field Period Assly	61	61	61	0	1.00	0	.99	61	61						
1802 - FP Assy Oversight&Support	263	263	188	0	1.00	76	1.40	409	954						
1803- FP Assy Toolg/Constructability	108	76	76	-32	.70	0	1.00	600	1,200		Design of the VV support fixture not started as planned. Re-scheduled to start in January. Priority given to the MC turning fixture. PDR 1/21, info mtg 1/28, for 3/4. No schedule impact. To be re-scheduled as part of a designer load leveling exercise. {SPI .65 last month}				
1804-FP Assy Measurement	241	332	283	91	1.38	49	1.17	415	476						
1808 - TF/Mod Coil Sub-Assembly									697						
1810 - Field Period Assembly									1,731						
19 1901 - Stellarator Core Mngt&Integr	1,107	1,082	1,045	-25	.98	36	1.03	1,534	2,421						
2 - Plasma Heating, Fueling & Vac Sys	369	369	347	0	1.00	22	1.06	369	780	-					
21 - Fueling Systems									81						
22 - Torus Vacuum Pumping Systems									330						
2001-VPS Gas& Cond Sys Oversight	60	60	63	0	1.00	-3	.96	60	60						
2501 - Neutral Beam Refurbishment	309	309	284	0	1.00	25	1.09	309	309						
3 - Diagnostics	249	249	237	0	1.00	12	1.05	506	1,117	-					
# 3101 Magnetic Diagnostics									205	414					
# 36 - Edge and Divertor Diagnostics										43					
38 36 - Electron Beam (EB) Mapping										291					
39 3901 - Diagnostics sys Integration	249	249	237	0	1.00	12	1.05	301	369						
4 - Electrical Power Systems	385	366	290	-19	.95	76	1.26	709	3,216	-					
41 4101 - AC Power	157	157	81	0	1.00	77	1.95	157	485						
43 4301 - DC Systems	79	51	45	-28	.64	5	1.12	239	446		No work during the month. No apparent schedule impact. Raki's availability has only been 26% total ytd for NCSX but should be increasing to 90% in January.				
44 4401 - Control & Protection	1	1	24	0	1.00	-23	.04	1	1,216						
45 4501 - Power Sys Dsn & Integr	147	155	138	9	1.06	17	1.12	310	1,068						
46 4601 - FCPC Bldg Mods	1	1	1	0	1.02		1.00	1	1						
5 - Central I&C Systems	27	27	33	0	1.01	-6	.83	37	1,917	-					
51 51 - TCP/IP Infrastructure Systems									265						
52 52 - Central Instrumentation & Cont									571						
53 53 - Data Acquisition & Fac Comput									328						
54 54 - Facility Timing & Synchronizati									207						
55 55 - Real Time Plasma & Power Sup									151						
56 56 - Central Safety Interlock System									358						
58 5801 -Central I&C Integr	27	27	33	0	1.01	-6	.83	37	37						
6 - Facility Systems	42	42	24	0	1.00	17	1.72	42	825	-					
61 61 - Water Systems									240						

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	Budgeted Cost			VARIANCES				Budget		EAC	Schedule	Cost
	BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI	Thru FY05	TEC	Incr.		
6163 - Facility Systems Support FY04	32	32	15	0	1.00	17	2.17	32	32			
# 62 - Cryogenic Systems									440			
# 63 - Utility Systems									103			
# 6501 - Facility Systems Integration	9	9	9		1.00	0	1.00	9	9			
7 - Test Cell Prep & Machine Assy	460	430	375	-30	.93	55	1.15	726	4,211	-		
# 7101 - Shield Wall Modif	32	32	32	0	1.00		1.00	32	32			
72 7201 - Control Room Walls&Floors								50	50			
73 7301 - Platform Design &								92	161			
74 7401 - TC Prep & Mach Assy Planni	428	398	343	-30	.93	55	1.16	552	1,506		Platform PDR re-schedule to February. No impact. Scope being reduced.	
75 Machine Assembly								-	2,239	-		
7501 - Construction Support Crew									1,003			
7502 - Test Cell Facility Preparations									53			
7503 - Machine Assembly									1,183			
76 7601 - Tooling Design & Fabrication									223			
8 - Project Oversight & Support	4,375	4,375	4,618	0	1.00	-243	.95	6,008	10,579	83		
81 Project Management and Control	1,894	1,894	2,084		1.00	-190	.91	2,721	4,579	26		
8101 - Project Management & Control	1,288	1,288	1,443		1.00	-155	.89	1,806	3,090		\$146k of historical variance in FY04.. \$9k variance FY to date. {CPI .89 last month}	
8102 - NCSX MIE Management ORNL	202	202	169		1.00	33	1.20	274	360			
8998 - Allocations	404	404	472		1.00	-68	.86	641	1,129	26	Allocations underbudgeted in FY05 by 10% plus costing at higher than linear rate. Forecast year end variance of \$26k {CPI .83 last month}	
82 Project Engineering	2,069	2,069	2,064		1.00	5	1.00	2,875	4,368	-		
8202 - Engr Mgmt & Sys Eng Support	1,152	1,152	1,166		1.00	-14	.99	1,644	2,662			
8203 - Design Integration	600	600	606		1.00	-7	.99	717	1,089			
8204 - Systems Analysis	317	317	292		1.00	25	1.09	513	617			
84 Project Physics	412	412	470	0	1.00	-58	.88	412	1,633	57		
8401 - Project Physcis	310	310	324	0	1.00	-13	.96	310	310	13	Project closed for balacne of MIE project. Variances for work in FY04.	
8402 - Project Physics MIE ORNL	102	102	146	0	1.00	-44	.70	102	102	44		
85 - Integrated Systems Testing									1,221			
Subtotal	23,813	23,042	23,434	-771	.97	-392	.983	38,404	73,300	560		
Contingency								1,200	13,053			
TOTAL PROJECT								39,604	86,353			
Thru fy04	20,640	19652	19744	-988	0.95	-92	1.00					
FY05 performance	3,173	3,390	3,690	217	1.07	-300	0.92					
ytd last month	21,812	21906	22158	94	1.00	-252	0.989					