

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

NCSX

DECEMBER 2005

**** Cumulative to date FY03, FY04 , FY05 & FY06****

	CUMULATIVE TO DATE (from 4/1/03) (k)								ECP 41 Budget Thru FY06	Variance Explanation	
	Budgeted Cost			VARIANCES				Schedule		Cost	
	BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI				
1 - Stellarator Core Systems	33,140	32,492	32,989	-648	.98	-497	.98	44,349			
12	7,210	7,171	7,176	-39	.99	-5	1.00	9,159			
1201 - Vacuum Vessel Prelim Dsn	424	424	424		1.00	0	1.00	424			
1202 - Vacuum Vessel R&D	1,770	1,770	1,771		1.00	-1	1.00	1,770			
1203 - Vacuum Vessel Final Dsn	1,089	1,016	1,010	-73	.93	6	1.01	1,098	Final assy requirement & assy drawings. Final design of heater tape system , VV dsn for SXR Diag, and cooling tube design behind. Final closeout FDR planned for Dec 15th pushed out to Feb 28. Emphasis being placed on near term procurement packages.		
1204-VV Sys Procurements (non VVSA	1	25	23	24	25.02	2	1.10	193			
1206 - VV Field Weld Joint R&D	16	16	16		1.00	0	1.00	16			
1250 - Vacuum Vessel Fabrication	3,910	3,920	3,932 (1)	10	1.00	-12	1.00	5,658	NOTE. VVSA FAB SCHEDULE RE-BASELINED IN ECP-41 CONSISTENT WITH VENDOR FORECAST AND LEVEL II MILESTONE.		
13	1,812	1,644	1,729	-168	.91	-85	.95	2,765			
1301 - TF Design	946	944	963	-2	1.00	-19	.98	946			
1302 - PF and CS Design	11			-11				11			
1350 - TF Coil Fabr Prep	628	501	526	-127	.80	-25	.95	743	Fabrication of Lift fixture and mandral on hold. Fab to be outsourced.		
1351 - TF Coil Fabr Supplies	216	180	222	-36	.83	-42	.81	811	G-11 and lead block fabrication behind.	Kalish oversight under estimated. Job to be replanned in future ECP	
1361 - TF Fabrication	12	20	19					254			
14	20,525	20,147	20,503	-378	.98	-356	.98	27,311			
1401 - Mod Coil Prel.Dsn	304	304	304		1.00	0	1.00	304			
1402 - Mod.Coil Analyses	239	239	239		1.00	0	1.00	239			
1403 - Modular Coil Final Design (includes job 1421 coil interface hw dsn)	3,253	3,187	3,360	-66	.98	-173	.95	3,339		Comined CPI for the design jobs (1403 & 1416) is .983 with a CV of -58	
1416 - Mod Coil Type A&B Final Design	346	214	99	-131	.62	116	2.17	756	Type A hardware & MCWF mods.. FDR for type A now forecast for March.		
1404-MCWF R&D & 1st Prod Casting	2,544	2,544	2,544		1.00	0	1.00	2,544			
1405-Mod Coil Winding R&D Prep	168	168	168		1.00	0	1.00	168			
1406 - Mod. Coil Winding Facility	2,247	2,247	2,247		1.00	0	1.00	2,247			
1407 -Mod Coil Winding Facility	2,546	2,546	2,546		1.00	0	1.00	2,546			
1408-Mod Coil Winding Supplies	783	677	750	-106	.86	-73	.90	1,638	Hardware (cladding,chill plates, lead hardware) all behind original plan but meeting fields needs.	In house fab of components (ie cladding) higher than estimated. However, clamps just awarded for \$74k vs an estiamte of \$270k!	
1409 - Mod. Coil Test Stand	916	916	916		1.00	0	1.00	916			
1410 MC Twisted Racetrack Fabr	1,050	1,050	1,050		1.00	0	1.00	1,050			

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1411-MCWF Fabrication S005242	4,839	4,793	4,732 (2)	-47	.99	60	1.01	8,098	C-3 delivery forecast to be 1 month late and C-4 2 weeks late. C6 required re-pour a 2 month setback. DELIVERY SCHEDULE BEING EVALUATED FOR SEQUENCE AND DELIVERY DATES. SCHEDULE IMPACT LIKELY. INTERNAL WORK AROUND PLANS REQUIRED TO MINIMIZE IMPACT TO CRITICAL PATH.***TBD**	
1412 - Complete Winding Facilities	537	537	537		1.00	0	1.00	537		
1413 - Mod Coil Fracture Analysis	28	28	28		1.00	0	1.01	28		
1414 - Coil Testing	164	168	193	4	1.03	-24	.87	276		
1415 - Dimensional Control Testing	24	24	24		1.00	0	1.00	24		
1419 - Winding Facility Modification	48	48	50		1.00	-2	.96	48		
1451 - Mod Coil Winding	490	457	674	-33	.93	-217	.68	2,553	C-1 Plan Completion 3/29/06 forecast 3/10/06 C-2 Plan completion 4/17/06 forecast 4/26/06 (late due late delivery of mcwf).	Some cladding needed to be removed and re-set, setting clamps longer than expected, and prep of cladding/chill plates for C1 & C2.
1459 - MC Unplanned rework			42			-42				Unbudget rework to C-1casting as well as misc unplanned support to the winding operation.
15	78	80	82	2	1.03	-2	.97	208		
1501 - Structures Design	78	80	82	2	1.03	-2	.97	208		
16 16 - Coil Services										
17	377	368	391	-9	.98	-23	.94	377		
1701-Cryost&Base Sprt Strct Dsn	377	368	391	-9	.98	-23	.94	377		
18	1,527	1,477	1,491	-49	.97	-14	.99	2,526		
1801-Field Period Assly	61	61	61		1.00	0	1.00	61		
1802 - FP Assy Oversight&Support	418	402	418	-17	.96	-17	.96	718		
1803- FP Assy Toolg/Constructability	584	566	564	-18	.97	3	1.00	933		
1804-FP Assy Measurement	441	438	447	-4	.99	-10	.98	452		
1810 - Field Period Assembly	22	10	1	-11	.48	10	18.03	362		
19 1901 - Stellarator Core Mngtt&Inte	1,611	1,605	1,617	-6	1.00	-12	.99	2,003		
2 - Plasma Heating,Fueling & Va	349	349	347		1.00	2	1.01	349		
2001-VPS Gas& Cond Sys Oversight	64	64	63		1.00	1	1.02	64		
2501 - Neutral Beam Refurbishment	285	285	284		1.00	1	1.00	285		
3 - Diagnostics	544	471	533	-72	.87	-62	.88	770		
31 3101 Magnetic Diagnostics	252	180	241	-72	.71	-61	.75	425	VV saddle loop and termination boxes behind.	Engineering and technician time underestimated
39 3901 - Diagnostics sys Integrator	291	291	292	0	1.00	-1	1.00	345		
4 - Electrical Power Systems	645	583	648	-62	.90	-65	.90	742		

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		BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI	Thru FY06		
41	4101 - AC Power	107	107	107		1.00	0	1.00	107		
43	4301 - DC Systems	265	271	330	6	1.02	-59	.82	314		?
44	4401 - Control & Protection	55	59	71	4	1.07	-12	.83	55		
45	4501 - Power Sys Dsn & Integr	217	145	138	-72	.67	7	1.05	265	C-site cabling design behind. Design needs to be redone. Planning FDR in Feb with cable installation by March. (scope accelerated from FY07)	
46	4601 - FCPC Bldg Mods	1	1	1		1.00	0	.77	1		
5	5 - Central I&C Systems	33	33	33		1.00	0	1.00	33		
58	5801 -Central I&C Integr	33	33	33		1.00	0	1.00	33		
6	6 - Facility Systems	24	24	24		1.00	0	.99	24		
	6163 - Facility Systems Support FY04	15	15	15		1.00	0	1.01	15		
	62 - Cryogenic Systems								-		
	63 - Utility Systems								-		
	6501 - Facility Systems Integration	9	9	9		1.00	0	.96	9		
7	7 - Test Cell Prep & Machine As	897	899	932	2	1.00	-33	.96	915		
	7101 - Shield Wall Modif	32	32	32		1.00	0	1.00	32		
	7201 - Control Room Walls&Floors								-		
	7301 - Platform Design &	71	72	76	1	1.01	-4	.95	71		
	7401 - TC Prep & Mach Assy Plan	794	795	824	1	1.00	-29	.97	812		
8	8 - Project Oversight & Support	6,886	6,886	7,018	1	1.00	-131	.98	8,665		
81		3,252	3,252	3,311	0	1.00	-58	.98	4,126		
	8101 - Project Management & Control	2,101	2,101	2,127	0	1.00	-26	.99	2,588		
	8102 - NCSX MIE Management ORNL	295	295	302	0	1.00	-7	.98	429		
	8998 - Allocations	856	856	882	0	1.00	-26	.97	1,109		
82		3,164	3,164	3,237	1	1.00	-73	.98	4,069		
	8202 - Engr Mgmt & Sys Eng Support	1,760	1,760	1,796	0	1.00	-36	.98	2,241		
	8203 - Design Integration	719	719	711	0	1.00	8	1.01	826		
	8204 - Systems Analysis	551	551	607	0	1.00	-55	.91	724		
	8205 - Dimensional Control Coord.	133	133	124	0	1.00	10	1.08	278		
84		470	470	470		1.00	0	1.00	470		
	8401 - Project Physcis	324	324	324		1.00	0	1.00	324		
	8402 - Project Physics MIE ORNL	146	146	146		1.00	0	1.00	146		
	Subtotal	42,516	41,738	42,524	-779	.98	-786	.98	55,848		
	Contingency/Management Reserve								1,295		
	Incremental Funding								1,291		
	1% hold back on FY06 BA								(172)		
	DCMA QA Inspection services								75		
	TOTAL PROJECT								58,337		

(1) Reflects no adjustment based on MTM's June earned value report
 (2) Reflects accrual decrease of \$ 72 k based on EIO's June earned value report

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	BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI	Thru FY06		
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			
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			
Thru May (ecp-30)	31,301	29,903	30,889	-1398	0.96	-986	0.97			
Thru June (ecp-30)	32,740	31,362	32,719	-1378	0.96	-1357	0.96			
Thru July (ecp-36)	35,206	33,682	34,276	-1524	0.96	-594	0.98			
Thru Aug (ecp-36)	36,914	35,480	36,416	-1434	0.96	-936	0.97			
Thru Sep (ecp-36)	38,562	36,721	38,314	-1841	0.95	-1593	0.96			
<i>PARS for OCT</i>	<i>1,710</i>	<i>3,061</i>	<i>1,485</i>							
Thru Oct (ecp-39)	40,272	39,782	39,799	-490	0.99	-17	1.00			
<i>PARS for NOV</i>	<i>1,673</i>	<i>1,060</i>	<i>1,394</i>							
Thru NOV (ecp-39)	41,945	40,842	41,193	-1103	0.97	-351	0.99			
<i>PARS for DEC</i>	<i>571</i>	<i>896</i>	<i>1,331</i>							
Thru DEC (ecp-41)	42,516	41,738	42,524	-778	0.98	-786	0.98			