

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

NCSX

SEPTEMBER 2006

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

SEPTEMBER 2006

	CURRENT MONTH			CUMULATIVE TO DATE (from 4/1/03) (k)								ECP 50	Variance Explanation	
	BCWS	BCWP	ACWP (4)	Budgeted Cost			VARIANCES				Budget Thru FY06		Schedule	Cost
				BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI				
1 - Stellarator Core Systems	1,086	1,089	1,326	44,999	44,032	45,535		-966	.98	-1,503	.97	44,999		
12 Vacuum Vessel Systems	9	50	58	9,413	9,328	9,470		-84	.99	-142	.99	9,413		
CLOSED 1201 - Vacuum Vessel Prelim Dsn				424	424	424		0	1.00	0	1.00	424		
CLOSED 1202 - Vacuum Vessel R&D				1,770	1,770	1,771		0	1.00	0	1.00	1,770		
CLOSED 1203 - Vacuum Vessel Final Dsn	0	-4	31	1,270	1,248	1,217		-22	.98	30	1.03	1,270	VVSA assembly dwgs not completed. Replanned to job 1806 in FY07. Job closed.	
1204-VV Sys Procurements (non VVSA)	1	1	-5	249	188	233		-62	.75	-45	.81	249	Procurement of heating/cooling tubing and attachments deferred until October due to funding limitations. No impact on stage 1 field period assembly.	Vertical supports titanium rods. (delivered but PPPL fab on hold until fy07. No work performed in September.
CLOSED 1206 - VV Field Weld Joint R&D				16	16	16			1.00	0	.98	16		
1250 - Vacuum Vessel Fabrication	7	52	33	5,683	5,683	5,809 (1)		0	1.00	-126	.98	5,683	All VVSA's delivered. Work scope completed, however, Title III planned for FY07 for as-built VVSA modeling.	Title III and vendor oversight; analysis of NCR's.
13 Conventional Coils	364	285	280	3,015	2,701	2,723		-313	.90	-22	.99	3,015		
1301 - TF Design		-26	-2	966	939	970		-27	.97	-32	.97	966	Job closed. Final analysis documentation to be moved to Title III in job 1361	
1302 - PF Design	11		-1	11		19		-11		-19		11		
1303 - Central Solenoid Support Design		-11	9	117	106	133		-11	.91	-26	.80	117	FDR chit followup remains. Job to remain open.	
1350 - TF Coil Fabr Prep	0		-11	547	547	536		0	1.00	11	1.02	547		
1351 - TF Coil Fabr Supplies	0		-10	470	461	452		-9	.98	9	1.02	470	TF lead spur fabrication by PPPL remains. To be completed in October.	
1361 - TF Fabrication	353	322	294	904	648	613 (3)		-256	.72	35	1.06	904	Wedges material procurement behind schedule. First coil delivery forecast 9 weeks late. 3rd coil delivery forecast <2 weeks late.	
14 Modular Coils	491	640	826	27,503	27,187	28,462		-316	.99	-1,275	.96	27,503		
CLOSED 1401 - Mod Coil Prel.Dsn				304	304	304		0	1.00	0	1.00	304		
CLOSED 1402 - Mod.Coil Analyses				239	239	239		0	1.00	0	1.00	239		
1403 - MoCoil Final Dsn (incl job 1421 coil interface hw dsn)1416 - Mod Coil Type A&B Final Design	39	20	91	4,134	3,836	3,959		-298	.93	-124	.97	4,134	Type A & B assembly drawings and remaining hardware to be completed in FY07.	
CLOSED 1404-MCWF R&D & 1st Prod Casting			-1	2,544	2,544	2,543		0	1.00	1	1.00	2,544		
CLOSED 1405-Mod Coil Winding R&D Prep				168	168	168		0	1.00	0	1.00	168		
CLOSED 1406 - Mod. Coil Winding Facility			-1	2,264	2,264	2,263			1.00	1	1.00	2,264		
CLOSED 1407 -Mod Coil Winding Facility			-1	2,571	2,571	2,570			1.00	2	1.00	2,571		
1408-Mod Coil Winding Supplies	1	101	73	1,767	1,641	1,756		-127	.93	-115	.93	1,767	Type B cladding, chill plates and lead hardware behind schedule.	Half of cost variance due to Type A cladding estimate. (vendor error in quote) CPI .95 last month
CLOSED 1410 MC Twisted Racetrack Fabr			-1	1,050	1,050	1,050		0	1.00	1	1.00	1,050		
1411-MCWF Fabrication S005242	196	291	225	7,796	8,065	8,102 (2)		269	1.03	-37	1.00	7,796		Vendor oversight and NCR reconciliation as well as \$39k of additional unplanned incentives. Cost reflects audit generated unallowable cost reduction.
CLOSED 1412 - Complete Winding Facilities			-1	541	541	541			1.00	0	1.00	541		
CLOSED 1413 - Mod Coil Fracture Analysis				28	28	28		0	1.01	0	1.01	28		
CLOSED 1409 - Mod. Coil Test Stand			4	826	826	833		0	1.00	-7	.99	826		
CLOSED 1414 - Coil Testing			-25	675	675	639		0	1.00	36	1.06	675		
CLOSED 1415 - Dimensional Control Testing				24	24	24		0	.99	0	.99	24		
CLOSED 1419 - Winding Facility Modification				55	55	48			1.00	7	1.14	55		

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	BCWS	BCWP	ACWP (4)	Budgeted Cost			VARIANCES				Budget Thru FY06		Schedule	Cost
				BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI				
1451 - Mod Coil Winding (incl 1459 unplanned work)	255	228	463	2,517	2,356	3,396	-161	.94	-1,040	.69	2,517	Winding tasks approx 15 days behind schedule. 3rd winding fixture to be installed to maximize efficiency. (Ref weekly winding status) (SPI .94 last month)	Typical year-end close number of weekly payrolls processed (7 weeks vs the norm of 4) resulted in a poor cost performance index for the month. The cost data, once normalized, does suggest that the learning curve experienced to date has "flattened out". It is hoped that the 3rd winding station will improve cost efficiencies and schedule.	
15 Structures	26	0	-2	139	99	117	-40	.71	-18	.84	139			
1501 - Structures Design	26	0	-2	139	99	113	-40	.71	-14	.87	139	Structures design deferred to FY07 due to FY06 cost constraints.		
1550 - Structures Procurement			0			4			-4		-			
16 - Coil Services			0	3	3	3		1.00	0	1.07	3			
17 Cryostat and Base	3	5	-2	487	425	417	-62	.87	8	1.02	487			
1701-Cryostat&Base Sprt Strct Dsn	3	5	-2	487	425	417	-62	.87	8	1.02	487	Base support structure prelim design on hold until FY07.		
18 Field Period Assembly	153	69	112	2,433	2,282	2,392	-151	.94	-110	.95	2,433			
CLOSED 1801-Field Period Assly			0	65	65	64		1.00	0	1.00	65			
1802 - FP Assy Oversight&Support	31	29	20	664	663	675		1.00	-12	.98	664			
1803- FP Assy Tooling/Constructability	81	2	42	954	838	943	-116	.88	-105	.89	954	Station 3 and 4 designs were to have been completed in September. Reschedule to FY07 consistent with filed need dates	Seismic and structural analysis for station 2 half period assembly. Technician time charges yet to be reconciled.	
1804-FP Assy Measurement	1	2	-1	549	549	548	-1	1.00	1	1.00	549			
1810 - Field Period Assembly	39	36	51	200	168	161	-32	.84	6	1.04	200	Metrology issues impacting schedule. Layout of diagnostic loops slipped by 1 1/2 months.		
19 1901 - Stellarator Core Mngt&Integr	41	41	54	2,007	2,007	1,951	0	1.00	55	1.03	2,007			
2 - Plasma Heating, Fueling & Vac Sys		0	0	348	348	348	0	1.00		1.00	348			
CLOSED 2001-VPS Gas& Cond Sys Oversight			0	64	63	63		-1	.99	1.00	63			
CLOSED 2501 - Neutral Beam Refurbishment		0	0	285	285	285		0	1.00	1.00	285			
3 - Diagnostics		6	3	757	732	787	-25	.97	-55	.93	757			
31 3101 Magnetic Diagnostics	3	0	3	411	387	470	-25	.94	-83	.82	411	MC C-wound loops impacted by oven repairs necessary for heat shrinking of MI tubing. Termination box fab deferred to FY07 due to funding.	Design and fabrication of Vacuum vessel saddle loops and oven repair. (CPI .83 last month)	
39 3901 - Diagnostics sys Integration	6	6	0	345	345	318	0	1.00	28	1.09	345			
4 - Electrical Power Systems			-10	757	722	710	-34	.95	12	1.02	757			
41 4101 - AC Power				107	108	107	1	1.01	0	1.00	107		All electrical power systems work on hold until FY08.	
43 4301 - DC Systems			-9	382	382	370	0	1.00	13	1.03	382			
44 4401 - Control & Protection			-2	82	83	81	0	1.00	2	1.03	82			
45 4501 - Power Sys Dsn & Integr			1	184	148	152	-36	.80	-4	.98	184			
46 4601 - FCPC Bldg Mods				1	1	1		1.00		1.00	1			
5 - Central I&C Systems	5	2		46	46	33		1.00	13	1.38	46			
58 5801 -Central I&C Integr	5	2		46	46	33		1.00	13	1.38	46			
6 - Facility Systems				24	24	24	0	1.02	0	1.01	24			
6163 - Facility Systems Support FY04				15	15	15		1.00	0	1.01	15			
62 - Cryogenic Systems											-			
63 - Utility Systems											-			
CLOSED 6501 - Facility Systems Integration				9	9	9	0	1.04	0	1.00	9			
7 - Test Cell Prep & Machine Assy			-2	938	942	947	4	1.00	-5	.99	938			
CLOSED 7101 - Shield Wall Modif			0	32	33	33	1	1.02	0	1.00	32			
7201 - Control Room Walls&Floors											-			
7301 - Platform Design &			0	75	76	76	1	1.02	0	1.00	75			
7401 - TC Prep & Mach Assy Planning			-1	831	833	839	2	1.00	-5	.99	831			
8 - Project Oversight & Support	191	190	139	8,768	8,769	9,002	1	1.00	-233	.97	8,766			

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CURRENT MONTH

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ECP 50

Variance Explanation

	CURRENT MONTH			CUMULATIVE TO DATE (from 4/1/03) (k)								Budget Thru FY06	Variance Explanation	
	BCWS	BCWP	ACWP ⁽⁴⁾	Budgeted Cost			VARIANCES				Schedule		Cost	
				BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI				
81 Project Management and Control	92	91	130	4,126	4,126	4,189	0	1.00	-63	.98	4,126			
8101 - Project Management & Control	51	51	11	2,588	2,588	2,556	0	1.00	33	1.01	2,588			
8102 - NCSX MIE Management ORNL	14	14	22	429	429	430	0	1.00	-1	1.00	429			
8998 - Allocations	26	26	96	1,109	1,109	1,204	0	1.00	-95	.92	1,109			
82 Project Engineering	100	99	9	4,172	4,172	4,342		1.00	-170	.96	4,171			
8202 - Engr Mgmt & Sys Eng Support	50	50	24	2,241	2,241	2,281		1.00	-40	.98	2,241		C1 testing report. CV= -66 last month.	
8203 - Design Integration	11	11	6	827	827	853	0	1.00	-26	.97	826			
8204 - Systems Analysis	23	23	-15	826	826	970	0	1.00	-145	.85	826		Unplanned integrated modeling analysis.	
8205 - Dimensional Control Coord.	15	15	-6	279	279	239	0	1.00	40	1.17	278			
84 Project Physics				470	471	470	1	1.00	1	1.00	470			
CLOSED 8401 - Project Physics				324	324	324	0	1.00	1	1.00	324			
CLOSED 8402 - Project Physics MIE ORNL				146	146	146	1	1.00	0	1.00	146			
Subtotal	1,290	1,287	1,457	56,635	55,615	57,387	-1,020	.98	-1,772	.97	56,635			
Contingency/Management Reserve											508			
Incremental Funding											1,291			
1% hold back on FY06 BA											(172)			
DCMA QA Inspection services											75			
TOTAL PROJECT											58,337			

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						Budgeted Cost		VARIANCES				Budget				
			BCWS	BCWP	ACWP (4)	BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI	Thru FY06	Schedule	Cost	
Thru FY2004						20,640	19,852	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			Contingency less c	
Thru Feb (ecp-24)						26,637	25,856	26,285	-781	0.97	-429	0.98			9	
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)	Thru Sep (ecp-36)					38,562	36,721	38,314	-1841	0.95	-1593	0.96	BCWR	contingency remaining		
PARS for OCT						1,710	3,061	1,485	-90	0.94	-17	0.98	for October only			
Thru Oct (ecp-39)						40,272	39,782	39,799	-490	0.99	-17	1.00	42,943	9600	22.4%	
PARS for NOV						1,673	1,060	1,394	-613	0.63	-334	0.76			22.3%	
Thru NOV (ecp-39)						41,945	40,842	41,193	-1103	0.97	-351	0.99	41,883	9600	22.9%	
PARS for DEC						1,274	896	1,331	-378	0.70	-435	0.67			22.1%	
Thru DEC (ecp-39)						43,219	41,738	42,524	-1481	0.97	-786	0.98	40,987	9600	23.4%	
PARS for JAN						1,633	1,594	1,647	-39	0.98	-53	0.97			21.5%	
Thru JAN (ecp-39)						44,852	43,332	44,171	-1520	0.97	-839	0.98	39,393	9600	24.4%	
PARS for FEB						1,471	1,431	2,001	-40	0.97	-570	0.72			22.2%	
Thru FEB (ecp-39)						46,323	44,763	46,172	-1560	0.97	-1409	0.97	37,962	9600	25.3%	
PARS for MAR						1,900	1,587	1,860	-313	0.84	-273	0.85			21.6%	
Thru MAR (ecp-043)						48,223	46,350	48,032	-1873	0.96	-1682	0.96	37,255	8720	23.4%	
PARS for APR						1,247	1,297	1,712	50	1.04	-415	0.76			18.9%	
Thru APR (ecp-043)						49,470	47,647	49,744	-1823	0.96	-2097	0.96	35,958	8720	24.3%	
PARS for MAY						1,025	2,238	1,661	1213	2.18	577	1.35			18.4%	
Thru MAY (ECP-45)						50,495	49,885	51,405	-610	0.99	-1520	0.97	34,269	8171	23.8%	
PARS for JUNE						1,375	1,367	1,581	-8	0.99	-214	0.86			19.4%	
Thru June (ECP-45)						51,870	51,252	52,986	-618	0.99	-1734	0.97	32,902	8171	24.8%	
PARS for JULY						1,563	1,751	1,629	188	1.12	123	1.08			19.6%	
Thru July (ECP-49 & 50)						53,433	53,003	54,615	-430	0.99	-1611	0.97	31,448	7874	25.0%	
PARS for AUG						1,912	1,323.6	1,315.5	-588	0.69	8	1.01			19.9%	
Thru August (ECP 49 & 50)						55,345	54,327	55,930	-1018	0.98	-1603	0.97	30,124	7874	26.1%	
PARS for SEP						1,290	1,288	1,457	-2	1.00	-169	0.88			20.8%	
Thru September (ECP49 & 50)						56,635	55,615	57,387	-1020	0.98	-1772	0.97	28,836	7874	27.3%	
						FY06 subtotal=	18,073	17,301	19,073	-773	0.96	-1772	0.91			21.2%

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			BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI	

Variance Explanation	
Schedule	Cost

