

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

NCSX

JUNE 2006

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

JUNE 2006

ECP 45

Variance Explanation

	CURRENT MONTH							CUMULATIVE TO DATE (from 4/1/03) (k)							Budget Thru FY06	Variance Explanation	
	BCWS	BCWP	ACWP	SV	SPI	CV	CPI	Budgeted Cost			VARIANCES					Schedule	Cost
								BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI			
1 - Stellarator Core Systems	1,092	1,126	1,335	34	1.03	-209	0.84	41,062	40,513	41,684	-549	.99	-1,171	.97	45,244		
12 Vacuum Vessel Systems	200	138	182	-62	0.69	-45	0.76	8,734	8,556	8,636	-178	.98	-80	.99	9,413		
CLOSED 1201 - Vacuum Vessel Prelim Dsn	0			0				424	424	424	0	1.00	0	1.00	424		
CLOSED 1202 - Vacuum Vessel R&D	0			0				1,770	1,770	1,771	0	1.00	0	1.00	1,770		
1203 - Vacuum Vessel Final Dsn		12	22	12		-10	0.53	1,270	1,245	1,170	-25	.98	75	1.06	1,270	Resource limited in June. FDR planned for July20. Field period assy dwgs deferred until FY07.	
1204-VV Sys Procurements (non VVSA)	72	2	16	-70		-14		237	184	242	-53	.78	-58	.76	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. Cost variance to grow due to the bids received for the cooling/heating tubes.
CLOSED 1206 - VV Field Weld Joint R&D	0			0				16	16	16	0	1.03	0	1.00	16		
1250 - Vacuum Vessel Fabrication	128	124	144	-3	0.98	-20	0.86	5,017	4,916	5,012	-101	.98	-97	.98	5,683	VVSA #3 behind. Rework required to meet tolerances. Delivery expected mid-September.	Title III and vendor oversight; analysis of NCR's
13 Conventional Coils	146	95	95	-51	0.65	0	1.01	2,344	2,272	2,305	-72	.97	-34	.99	3,023		
1301 - TF Design								966	965	973	-1	1.00	-8	.99	966		
1302 - PF Design										21			-21		11		
1303 - Central Solenoid Support Design			4			-4		103	96	106	-8	.93	-10	.90	117		
1350 - TF Coil Fabr Prep								547	547	549		1.00	-2	1.00	547		
1351 - TF Coil Fabr Supplies	14	12	10	-3	0.81	1	1.15	457	461	452	4	1.01	9	1.02	470		
1361 - TF Fabrication	132	84	81	-48		3	1.04	271	204	205	-67	.75	-2	.99	913	Tooling and wedges material procurement 2 months behind schedule. First coil delivery forecast 9 weeks late. 3rd coil delivery forecast <2 weeks late.	
14 Modular Coils	586	725	911	139	1.24	-185	0.80	25,631	25,327	26,290	-304	.99	-963	.96	27,789		
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		1.00	239		
1403 - MoCoil Final Dsn (incl job 1421 coil interface hw dsn)	39	8	15	-30	0.21	-7	0.53	3,618	3,489	3,481	-129	.96		8	1.00	3,688	Finish top-level assy dwgs by end of July.
1416 - Mod Coil Type A&B Final Design	29	18	37	-11	0.63	-19	0.49	357	299	321	-58	.84	-22	.93	446	Type A & B closeout forecast for end of FY.	
CLOSED 1404-MCWF R&D & 1st Prod Casting								2,544	2,544	2,544	0	1.00	0	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								2,264	2,264	2,264		1.00	0	1.00	2,264		

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Task ID	Task Description	CURRENT MONTH							CUMULATIVE TO DATE (from 4/1/03) (k)							ECP 45 Budget Thru FY06	Variance Explanation		
		BCWS	BCWP	ACWP	SV	SPI	CV	CPI	Budgeted Cost			VARIANCES					Schedule	Cost	
									BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI				
CLOSED 1407	-Mod Coil Winding Facility							2,571	2,571	2,571				1.00	0	1.00	2,571		
	1408-Mod Coil Winding Supplies	103	30	75	-72	0.30	-45	0.40	1,599	1,363	1,439	-236	.85	-75	.95	1,767	Type A cladding, chill plates and lead hardware behind schedule but just in time to support fabrication.	Contract cost of chill plates and cladding increased due to vendor error.	
CLOSED 1410	MC Twisted Racetrack Fabr			-1			1	1,050	1,050	1,051	0	1.00	-1	1.00	1,050				
	1411-MCWF Fabrication S005242	1	384	397	383	####	-13	0.97	7,162	7,366	7,421	205	1.03	-55	.99	8,195		Vendor oversight and NCR reconcile.	
CLOSED 1412	- Complete Winding Facilities							541	541	542		1.00	-1	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			-36			36	916	916	826	0	1.00	90	1.11	916				
CLOSED 1414	- Coil Testing	89	96	175	8		-79	471	471	668		1.00	-197	.71	471		Final testing of C1 completed. ECP-49 reconcile cost overrun.		
CLOSED 1415	- Dimensional Control Testing							24	24	24	0	.99	0	.99	24				
CLOSED 1419	- Winding Facility Modification			-8			8	55	55	48		1.00	7	1.14	55				
	1451 - Mod Coil Winding (incl 1459 unplanned work)	327	188	256	-139	0.58	-67	0.74	1,721	1,635	2,351	-87	.95	-717	.70	2,517	Winding tasks approx 6 days behind schedule (6 months float still remain). Non critical path tasks (VPI and final clamp installation) approx 2 months behind. Limited manpower due to vacations has focused work on critical path tasks. Offers extended to 3 new candidates to supplement existing winding crews.	Last month cumulative CPI .69. Average monthly CPI over last 2 months = .95. Learning curve is flattening out. =	
15	Structures			8			-8	82	93	121	11	1.13	-28	.77	139				
	1501 - Structures Design			8			-8	82	93	117	11	1.13	-23	.80	139				
	1550 - Structures Procurement									4			-4		-				
16	16 - Coil Services							3	3	3		1.00	0	1.00	3				
17	Cryostat and Base	3	3		1		3	374	372	420	-2	.99	-49	.88	438				
	1701-Cryost&Base Sprt Strct Dsn							374	372	420	-2	.99	-49	.88	438	All work deferred until next FY.	Variance unchanges. No work performed or costed during the period		
18	Field Period Assembly	112	119	111	7	1.06	9	1.08	2,017	2,013	2,064	-4	1.00	-51	.98	2,433			
CLOSED 1801	-Field Period Assly							61	65	65	4	1.06	0	1.00	65				
	1802 - FP Assy Oversight&Support	34	34	20	0	1.00	14	1.71	567	567	577	0	1.00	-11	.98	664			
	1803- FP Assy Tooling/Constructability	36	48	55	12	1.33	-7	0.86	765	773	823	8	1.01	-50	.94	954		Seismic and structural analysis for station 2 half period assembly.	
	1804-FP Assy Measurement	2	2		0		2	544	543	532	-1	1.00	11	1.02	549				

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		BCWS	BCWP	ACWP	SV	SPI	CV	CPI	Budgeted Cost			VARIANCES					Budget Thru FY06	Schedule	Cost
									BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI				
	1810 - Field Period Assembly	40	36	36	-5	0.89	0	80	65	67	-16	.81	-2	.97	200				
19	1901 - Stellarator Core Mngt&Integr	45	45	29	0	0.99	16	1,878	1,878	1,844		1.00	34	1.02	2,007				
2 - Plasma Heating, Fueling & Vac Sys								348	349	348		1	1.00	1	1.00	348			
	CLOSED 2001-VPS Gas& Cond Sys Oversight							64	64	63	1	1.01	1	1.02	63				
	CLOSED 2501 - Neutral Beam Refurbishment							285	285	285	1	1.00	0	1.00	285				
3 - Diagnostics		33	16	20	-17	0.47	-4	673	657	761	-16	.98	-104	.86	694				
31	3101 Magnetic Diagnostics	27	9	17	-18	0.35	-7	345	329	448	-16	.95	-119	.74	349		Design and fabrication of Vacuum vessel saddle loops. Cost variance to be partially offset by the cancellation of the modular coil flux loops (\$60k)		
39	3901 - Diagnostics sys Integration	6	6	3	0	1.02	3	328	328	313		1.00	15	1.05	345				
4 - Electrical Power Systems				1			-1	622	587	722	-34	.94	-134	.81	622				
41	4101 - AC Power							107	108	107	1	1.01	0	1.00	107		All electrical power systems work on hold until FY07. Balance of FY06 to be spent finalizing subsystem		
43	4301 - DC Systems							276	276	382	1	1.00	-106	.72	276				
44	4401 - Control & Protection							58	59	83	0	1.01	-24	.71	58				
45	4501 - Power Sys Dsn & Integr			1			-1	179	143	148	-36	.80	-5	.97	179				
46	4601 - FCPC Bldg Mods							1	1	1		1.00		1.00	1				
5 - Central I&C Systems		2	2				2	39	39	33		1.00	6	1.17	46				
58	5801 -Central I&C Integr	2	2				2	39	39	33		1.00	6	1.17	46				
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														-				
	CLOSED 6501 - Facility Systems Integration						5	9	9	9		1.00	0	.96	9				
7 - Test Cell Prep & Machine Assy							-5	938	941	949	4	1.00	-8	.99	938				
	CLOSED 7101 - Shield Wall Modif							32	32	33		1.00	-1	.98	32				
	7201 - Control Room Walls&Floors														-				
	7301 - Platform Design &							75	76	76	1	1.02	0	1.00	75				
	7401 - TC Prep & Mach Assy Planning						-5	831	833	841	2	1.00	-7	.99	831				
8 - Project Oversight & Support		248	224	220	-24	0.90	4	8,166	8,143	8,466	-23	1.00	-323	.96	8,766				
81 Project Management and Control		101	100	76	0	1.00	24	3,838	3,838	3,901	0	1.00	-62	.98	4,126				
	8101 - Project Management & Control	56	56	57	0	0.99	-1	2,428	2,428	2,475	0	1.00	-47	.98	2,588		Variance unchanged.		
	8102 - NCSX MIE Management ORNL	15	15	8		1.00	7	385	385	391	0	1.00	-6	.98	429				
	8998 - Allocations	29	29	11	0	1.00	18	1,026	1,026	1,035	0	1.00	-9	.99	1,109				
82 Project Engineering		147	124	144	-24	0.84	-20	3,858	3,834	4,095	-23	.99	-261	.94	4,171				
	8202 - Engr Mgmt & Sys Eng Support	55	55	65	0	1.00	-9	2,083	2,083	2,137	0	1.00	-54	.97	2,241				
	8203 - Design Integration	12	12	21		1.00	-8	791	791	817		1.00	-26	.97	826				

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									Budgeted Cost			VARIANCES				Budget		
		BCWS	BCWP	ACWP	SV	SPI	CV	CPI	BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI	Budget	Schedule	Cost
		Thru FY06																
	8204 - Systems Analysis	63	39	45	-24	0.63	-6	0.87	753	730	910	-23	.97	-180	.80	826		Unplanned integrated modeling analysis. Cost variance forecast to be \$200k at year's end. Fiscal year07 appears significantly under budgeted.
	8205 - Dimensional Control Coord.	17	17	13		1.00	3	1.24	231	231	231	0	1.00	0	1.00	278		
	84 Project Physics								470	470	470	0	1.00	0	1.00	470		
	CLOSED 8401 - Project Physics								324	324	324		1.00	0	1.00	324		
	CLOSED 8402 - Project Physics MIE ORNL								146	146	146		1.00	0	1.00	146		
	Subtotal	1,375	1,367	1,581	-8	0.99	-213	0.86	51,870	51,252	52,986	-618	.99	-1,734	.97	56,682		
	Contingency/Management Reserve															461		
	Incremental Funding															1,291		
	1% hold back on FY06 BA															(172)		
	DCMA QA Inspection services															75		
	TOTAL PROJECT															58,337		
	(1) Reflects accrual DECREASE of \$257 k based on MTM's earned value report																	
	(2) Reflects accrual INCREASE of \$ 231 k based on EIO's earned value report																	

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	CURRENT MONTH								CUMULATIVE TO DATE (from 4/1/03) (k)						Budget Thru FY06	
									Budgeted Cost			VARIANCES				
	BCWS	BCWP	ACWP	SV	SPI	CV	CPI	BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI		
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)	Thru Sep (ecp-36)							38,562	36,721	38,314	-1841	0.95	-1593	0.96	BCWR	
	<i>PARS for OCT</i>							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	43,018	
	<i>PARS for NOV</i>							1,673	1,060	1,394	-613	0.63	-334	0.76		
Thru NOV (ecp-39)								41,945	40,842	41,193	-1103	0.97	-351	0.99	41,958	
	<i>PARS for DEC</i>							1,274	896	1,331	-378	0.70	-435	0.67		
Thru DEC (ecp-39)								43,219	41,738	42,524	-1481	0.97	-786	0.98	41,062	
	<i>PARS for JAN</i>							1,633	1,594	1,647	-39	0.98	-53	0.97		
Thru JAN (ecp-39)								44,852	43,332	44,171	-1520	0.97	-839	0.98	39,468	
	<i>PARS for FEB</i>							1,471	1,431	2,001	-40	0.97	-570	0.72		
Thru FEB (ecp-39)								46,323	44,763	46,172	-1560	0.97	-1409	0.97	38,037	
	<i>PARS for MAR</i>							1,900	1,587	1,860	-313	0.84	-273	0.85		
Thru MAR (ecp-043)								48,223	46,350	48,032	-1873	0.96	-1682	0.96	37,330	
	<i>PARS for APR</i>							1,247	1,297	1,712	50	1.04	-415	0.76		
Thru APR (ecp-043)								49,470	47,647	49,744	-1823	0.96	-2097	0.96	36,033	
	<i>PARS for MAY</i>							1,025	2,238	1,661	1213	2.18	577	1.35		
Thru MAY (ECP-45)								50,495	49,885	51,405	-610	0.99	-1520	0.97	34,344	
	<i>PARS for JUNE</i>							1,375	1,367	1,581	-8	0.99	-214	0.86		
Thru June (ECP-45)								51,870	51,252	52,986	-618	0.99	-1,734	0.97	32,977	
								FY06 subtotal=	13,309	12,938	14,672	-370	0.97	-1734	0.88	

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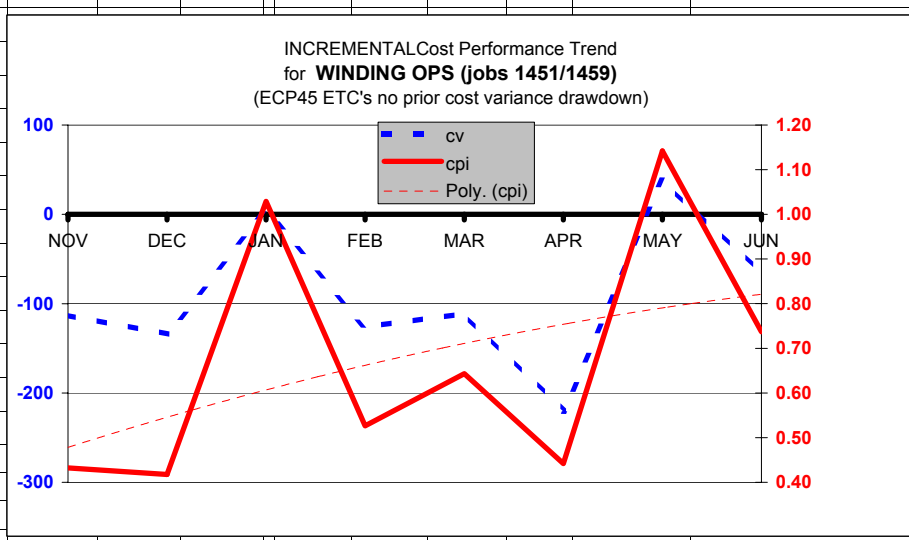
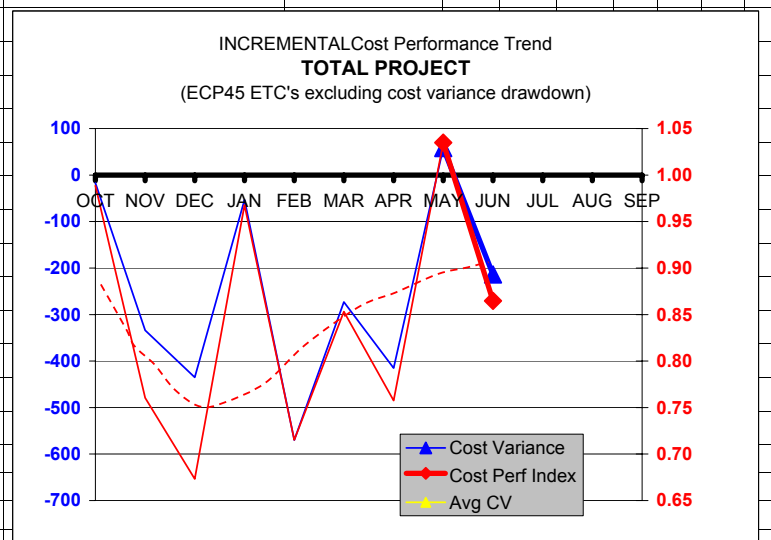
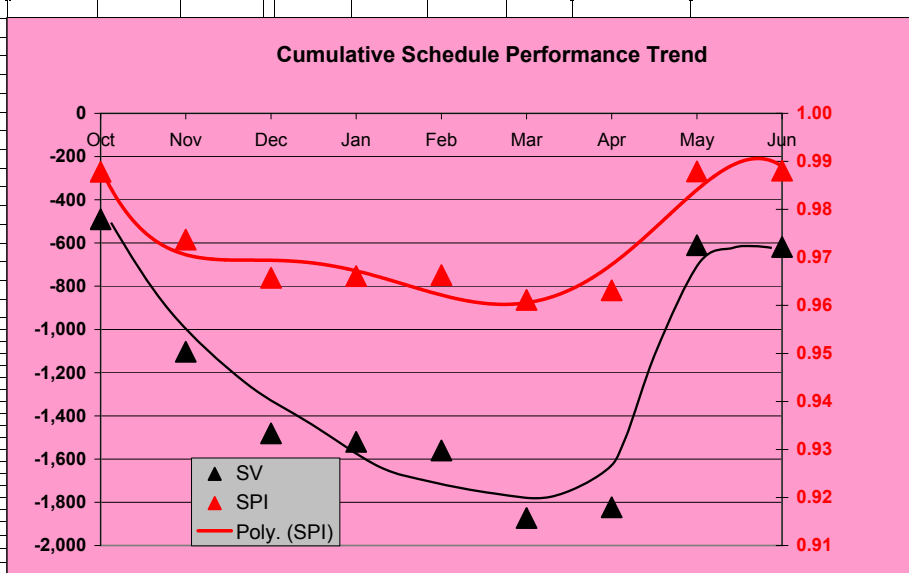
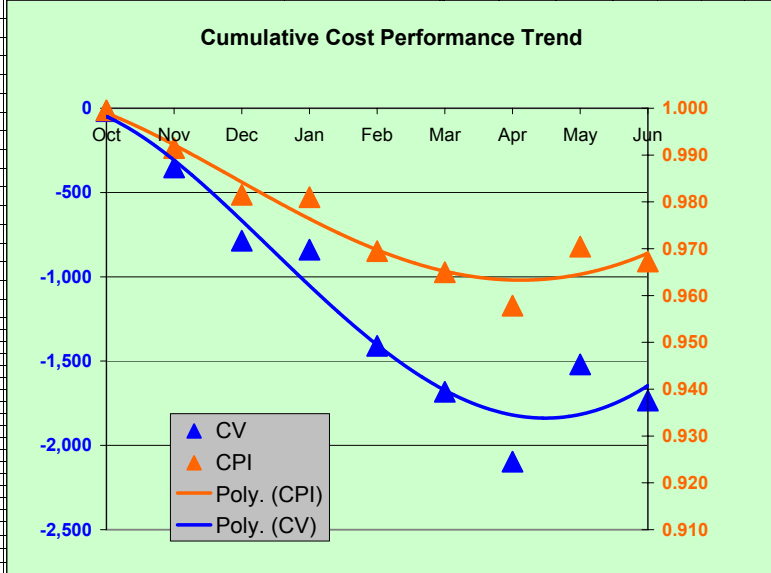
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<u>Cost Performance Improvement Metrics</u>							
<u>Monthly incremental cost variance average >-\$150k</u>							
			May	June	July	Aug	Sept
		<i>Target</i>	-150	-150	-150	-150	-150
		Actual Monthly Cost Variance	58	-214			
		Average Monthly Cost Variance	58	-78			
<u>Monthly incremental CPI average >0.90</u>							
			May	June	July	Aug	Sept
		<i>Target</i>	0.90	0.90	0.90	0.90	0.90
		Actual Monthly CPI	1.03	0.86			
		Average Monthly CPI	1.03	0.95			
<u>Year end contingency free balance (after inclusion of cost variances >20%)</u>							
			May	June	July	Aug	Sept
		<i>Target</i>	19.4%	19.6%	19.7%	19.8%	20.0%
		Current balance	19.4%	19.5%			