

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

**NCSX**

**MAY 2006**

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

**MAY 2006**

		CUMULATIVE TO DATE (from 4/1/03) (k)							ECP 45	Variance Explanation		
		Budgeted Cost			VARIANCES				Budget	April EAC	Schedule	Cost
		BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI	Thru FY06	Thru FY06		
<b>1 - Stellarator Core Systems</b>		<b>39,970</b>	<b>39,387</b>	<b>40,349</b>	<b>-583</b>	<b>.99</b>	<b>-961</b>	<b>.98</b>	<b>45,244</b>	<b>46,131</b>		
<b>12 Vacuum Vessel Systems</b>		<b>8,534</b>	<b>8,418</b>	<b>8,453</b>	<b>-116</b>	<b>.99</b>	<b>-35</b>	<b>1.00</b>	<b>9,413</b>	<b>9,531</b>		
CLOSED	1201 - Vacuum Vessel Prelim Dsn	424	424	424	0	1.00	0	1.00	424	424		
CLOSED	1202 - Vacuum Vessel R&D	1,770	1,770	1,771	0	1.00	0	1.00	1,770	1,771		
	1203 - Vacuum Vessel Final Dsn	1,270	1,234	1,148	-37	.97	85	1.07	1,270	1,151	Completion of assy dwgs and FDR close out slipped to the end of June.	
	1204-VV Sys Procurements (non VVSA)	165	182	226	17	1.10	-44	.81	249	343		Vertical supports titanium rods. (delivered but PPPL fab on hold until fy07)
CLOSED	1206 - VV Field Weld Joint R&D	16	16	16	1	1.03	0	1.00	16	16		
	1250 - Vacuum Vessel Fabrication	4,889	4,792	4,868	-98	.98	-77	.98	5,683	5,826	VVSA #2 final machining.Forecast delivery July 25.	Title III and vendor oversight; analysis of NCR's
<b>13 Conventional Coils</b>		<b>2,198</b>	<b>2,177</b>	<b>2,211</b>	<b>-21</b>	<b>.99</b>	<b>-34</b>	<b>.98</b>	<b>3,023</b>	<b>2,997</b>		
	1301 - TF Design	966	965	973	-1	1.00	-8	.99	966	969		
	1302 - PF Design			21			-21		11	21		
	1303 - Central Solenoid Support Design	103	96	102	-8	.93	-7	.94	117	120		
	1350 - TF Coil Fabr Prep	547	547	549		1.00	-2	1.00	547	564		
	1351 - TF Coil Fabr Supplies	443	450	442	7	1.02	8	1.02	470	465		
	1361 - TF Fabrication	140	120	125	-19	.86	-4	.96	913	858		
<b>14 Modular Coils</b>		<b>25,045</b>	<b>24,602</b>	<b>25,380</b>	<b>-443</b>	<b>.98</b>	<b>-778</b>	<b>.97</b>	<b>27,789</b>	<b>28,671</b>		
CLOSED	1401 - Mod Coil Prel.Dsn	304	304	304	0	1.00	0	1.00	304	304		
CLOSED	1402 - Mod.Coil Analyses	239	239	239	0	1.00		1.00	239	239		
	1403 - MoCoil Final Dsn (incl job 1421 coil interface hw dsn)	3,579	3,481	3,465	-98	.97	16	1.00	3,688	3,679	Type C Final design closeout slip to early July.	
	1416 - Mod Coil Type A&B Final Design	328	281	284	-47	.86	-3	.99	446	498	Type A closeout slip to mid July.	
CLOSED	1404-MCWF R&D & 1st Prod Casting	2,544	2,544	2,544	0	1.00	0	1.00	2,544	2,544		
CLOSED	1405-Mod Coil Winding R&D Prep	168	168	168	0	1.00	0	1.00	168	168		
CLOSED	1406 - Mod. Coil Winding Facility	2,264	2,264	2,264		1.00	0	1.00	2,264	2,264		
CLOSED	1407 -Mod Coil Winding Facility	2,571	2,571	2,571		1.00	0	1.00	2,571	2,571		
	1408-Mod Coil Winding Supplies	1,496	1,333	1,364	-163	.89	-31	.98	1,767	1,616	Type A cladding, chill plates and lead hardware.	
CLOSED	1410 MC Twisted Racetrack Fabr	1,050	1,050	1,052	0	1.00	-2	1.00	1,050	1,052		
	1411-MCWF Fabrication S005242	7,161	6,982	7,024	-179	.98	-42	.99	8,195	8,458		
CLOSED	1412 - Complete Winding Facilities	541	541	542		1.00	-1	1.00	541	542		
CLOSED	1413 - Mod Coil Fracture Analysis	28	28	28	0	1.01	0	1.01	28	28		
CLOSED	1409 - Mod. Coil Test Stand	916	916	862	0	1.00	54	1.06	916	862		
	1414 - Coil Testing	382	375	493	-8	.98	-118	.76	471	469		
CLOSED	1415 - Dimensional Control Testing	24	24	24	0	.99	0	.99	24	24		
CLOSED	1419 - Winding Facility Modification	55	55	56		1.00	-1	.98	55	56		
	1451 - Mod Coil Winding (incl 1459 unplanned work)	1,394	1,446	2,096	52	1.04	-649	.69	2,517	2,985		Prior cost variances retained. Previous CPI reported was .60

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		Budgeted Cost			VARIANCES				Budget Thru FY06				April EAC Thru FY06
		BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI					
<b>15</b>	<b>Structures</b>	<b>82</b>	<b>93</b>	<b>113</b>	<b>11</b>	<b>1.13</b>	<b>-20</b>	<b>.82</b>	<b>139</b>	<b>150</b>			
	1501 - Structures Design	82	93	109	11	1.13	-16	.86	139	150			
	1550 - Structures Procurement			4			-4		-				
<b>16</b>	<b>16 - Coil Services</b>	<b>3</b>	<b>3</b>	<b>3</b>		<b>1.00</b>	<b>0</b>	<b>1.00</b>	<b>3</b>	<b>3</b>			
<b>17</b>	<b>Cryostat and Base</b>	<b>371</b>	<b>368</b>	<b>420</b>	<b>-2</b>	<b>.99</b>	<b>-52</b>	<b>.88</b>	<b>438</b>	<b>473</b>			
	1701-Cryostat&Base Sprt Strct Dsn	371	368	420	-2	.99	-52	.88	438	473	Variance unchanged. No work performed or costed during the period		
<b>18</b>	<b>Field Period Assembly</b>	<b>1,905</b>	<b>1,894</b>	<b>1,953</b>	<b>-11</b>	<b>.99</b>	<b>-60</b>	<b>.97</b>	<b>2,433</b>	<b>2,363</b>			
CLOSED	1801-Field Period Assly	61	65	65	4	1.06	0	1.00	65	65			
	1802 - FP Assy Oversight&Support	533	533	557	0	1.00	-25	.96	664	734			
	1803- FP Assy Tooling/Constructability	729	726	768	-4	1.00	-42	.94	954	890			
	1804-FP Assy Measurement	542	541	532	0	1.00	9	1.02	549	532			
	1810 - Field Period Assembly	40	29	31	-11	.73	-2	.94	200	141			
<b>19</b>	<b>1901 - Stellarator Core Mngtt&amp;Integr</b>	<b>1,832</b>	<b>1,833</b>	<b>1,815</b>	<b>0</b>	<b>1.00</b>	<b>17</b>	<b>1.01</b>	<b>2,007</b>	<b>1,944</b>			
<b>2 - Plasma Heating, Fueling &amp; Vac Sys</b>		<b>348</b>	<b>349</b>	<b>348</b>	<b>1</b>	<b>1.00</b>	<b>1</b>	<b>1.00</b>	<b>348</b>	<b>348</b>			
CLOSED	2001-VPS Gas& Cond Sys Oversight	64	64	63	1	1.01	1	1.02	63	63			
CLOSED	2501 - Neutral Beam Refurbishment	285	285	285	1	1.00	0	1.00	285	285			
<b>3 - Diagnostics</b>		<b>640</b>	<b>641</b>	<b>741</b>	<b>1</b>	<b>1.00</b>	<b>-100</b>	<b>.87</b>	<b>694</b>	<b>867</b>			
<b>31</b>	<b>3101 Magnetic Diagnostics</b>	<b>318</b>	<b>320</b>	<b>431</b>	<b>1</b>	<b>1.00</b>	<b>-111</b>	<b>.74</b>	<b>349</b>	<b>546</b>	Design and fabrication of Vvacuum vessel saddle loops.		
<b>39</b>	<b>3901 - Diagnostics sys Integration</b>	<b>321</b>	<b>321</b>	<b>310</b>	<b>0</b>	<b>1.00</b>	<b>11</b>	<b>1.04</b>	<b>345</b>	<b>321</b>			
<b>4 - Electrical Power Systems</b>		<b>622</b>	<b>587</b>	<b>720</b>	<b>-34</b>	<b>.94</b>	<b>-133</b>	<b>.82</b>	<b>622</b>	<b>754</b>			
<b>41</b>	<b>4101 - AC Power</b>	<b>107</b>	<b>108</b>	<b>107</b>	<b>1</b>	<b>1.01</b>	<b>0</b>	<b>1.00</b>	<b>107</b>	<b>107</b>			
<b>43</b>	<b>4301 - DC Systems</b>	<b>276</b>	<b>276</b>	<b>382</b>	<b>1</b>	<b>1.00</b>	<b>-106</b>	<b>.72</b>	<b>276</b>	<b>399</b>	Unbudgeted re-design of C-site power systems		
<b>44</b>	<b>4401 - Control &amp; Protection</b>	<b>58</b>	<b>59</b>	<b>83</b>	<b>0</b>	<b>1.01</b>	<b>-24</b>	<b>.71</b>	<b>58</b>	<b>83</b>			
<b>45</b>	<b>4501 - Power Sys Dsn &amp; Integr</b>	<b>179</b>	<b>143</b>	<b>146</b>	<b>-36</b>	<b>.80</b>	<b>-3</b>	<b>.98</b>	<b>179</b>	<b>164</b>			
<b>46</b>	<b>4601 - FCPC Bldg Mods</b>	<b>1</b>	<b>1</b>	<b>1</b>		<b>1.00</b>		<b>1.00</b>	<b>1</b>	<b>1</b>			
<b>5 - Central I&amp;C Systems</b>		<b>36</b>	<b>36</b>	<b>33</b>		<b>1.00</b>	<b>3</b>	<b>1.10</b>	<b>46</b>	<b>33</b>			
<b>58</b>	<b>5801 -Central I&amp;C Integr</b>	<b>36</b>	<b>36</b>	<b>33</b>		<b>1.00</b>	<b>3</b>	<b>1.10</b>	<b>46</b>	<b>33</b>			
<b>6 - Facility Systems</b>		<b>24</b>	<b>24</b>	<b>24</b>		<b>1.00</b>	<b>0</b>	<b>.99</b>	<b>24</b>	<b>24</b>			
	6163 - Facility Systems Support FY04	15	15	15		1.00	0	1.01	15	15			
	<b>62 - Cryogenic Systems</b>								-	-			
	<b>63 - Utility Systems</b>								-	-			
CLOSED	6501 - Facility Systems Integration	9	9	9		1.00	0	.96	9	9			
<b>7 - Test Cell Prep &amp; Machine Assy</b>		<b>938</b>	<b>941</b>	<b>944</b>	<b>4</b>	<b>1.00</b>	<b>-3</b>	<b>1.00</b>	<b>938</b>	<b>949</b>			
CLOSED	7101 - Shield Wall Modif	32	32	33		1.00	-1	.98	32	33			
	<b>7201 - Control Room Walls&amp;Floors</b>								-	-			
	<b>7301 - Platform Design &amp;</b>	<b>75</b>	<b>76</b>	<b>76</b>	<b>1</b>	<b>1.02</b>	<b>0</b>	<b>1.00</b>	<b>75</b>	<b>76</b>			
	<b>7401 - TC Prep &amp; Mach Assy Planning</b>	<b>831</b>	<b>833</b>	<b>835</b>	<b>2</b>	<b>1.00</b>	<b>-2</b>	<b>1.00</b>	<b>831</b>	<b>840</b>			
<b>8 - Project Oversight &amp; Support</b>		<b>7,918</b>	<b>7,919</b>	<b>8,246</b>	<b>1</b>	<b>1.00</b>	<b>-327</b>	<b>.96</b>	<b>8,766</b>	<b>9,000</b>			
<b>81</b>	<b>Project Management and Control</b>	<b>3,737</b>	<b>3,738</b>	<b>3,825</b>	<b>1</b>	<b>1.00</b>	<b>-87</b>	<b>.98</b>	<b>4,126</b>	<b>4,188</b>			
	8101 - Project Management & Control	2,371	2,372	2,418	0	1.00	-46	.98	2,588	2,631			

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**ECP 45**

**Variance Explanation**

**Budgeted Cost**

**VARIANCES**

**Budget**

**April EAC**

**BCWS**

**BCWP**

**ACWP**

**Sch Var**

**SPI**

**Cst Var**

**CPI**

**Thru FY06**

**Thru FY06**

**Schedule**

**Cost**

8102 - NCSX MIE Management ORNL

369 369 383 0 1.00 -14 .96

429

442

8998 - Allocations

997 997 1,024 0 1.00 -27 .97

1,109

1,115

**82 Project Engineering**

**3,710 3,711 3,951 1 1.00 -241 .94**

**4,171**

**4,342**

8202 - Engr Mgmt & Sys Eng Support

2,027 2,028 2,073 0 1.00 -45 .98

2,241

2,278

8203 - Design Integration

779 779 796 0 1.00 -18 .98

826

854

8204 - Systems Analysis

690 690 865 0 1.00 -175 .80

826

931

Unplanned integrated structural analysis.

8205 - Dimensional Control Coord.

214 214 217 0 1.00 -3 .99

278

280

**84 Project Physics**

**470 470 470 0 1.00 0 1.00**

**470**

**470**

CLOSED 8401 - Project Physics

324 324 324 0 1.00 0 1.00

324

324

CLOSED 8402 - Project Physics MIE ORNL

146 146 146 0 1.00 0 1.00

146

146

(250)

**Subtotal**

**50,495 49,885 51,405 -610 .99 -1,520 .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**

**57,857**

(1) Reflects accrual DECREASE of \$143.7 k based on MTM's earned value report

(2) Reflects accrual INCREASE of \$ 132.74 k based on EIO's earned value report

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		Budgeted Cost			VARIANCES				Budget	April EAC	Schedule	Cost
		BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI	Thru FY06	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)	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	43,018		9600 22.3%	
	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	41,958		9600 22.9%	
	PARS for DEC	1,274	896	1,331	-378	0.70	-435	0.67			22.0%	
Thru DEC (ecp-39)		43,219	41,738	42,524	-1481	0.97	-786	0.98	41,062		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	39,468		9600 24.3%	
	PARS for FEB	1,471	2,001	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	38,037		9600 25.2%	
	PARS for MAR	1,900	1,587	1,860	-313	0.84	-273	0.85			21.5%	
Thru MAR (ecp-043)		48,223	46,350	48,032	-1873	0.96	-1682	0.96	37,330		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	36,033		8720 24.2%	
	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	34,344		8171 23.8%	
											19.4%	
		11,933	11,571	13,091	-363	0.97	-1520	0.88				

