

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

**NCSX**

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

**NOVEMBER FY05**

	CUMULATIVE TO DATE (from 4/1/03) (k)								Budget Thru FY05	TEC
	Budgeted Cost		ACWP	VARIANCES						
	BCWS	BCWP		Sch Var	SPI	Cst Var	CPI			
<b>1 - Stellarator Core Systems</b>	<b>16,168</b>	<b>16,257</b>	<b>16,419</b>	<b>89</b>	<b>1.01</b>	<b>-162</b>	<b>.99</b>	<b>30,008</b>	<b>50,655</b>	
<b>12 Vacuum Vessel Systems</b>	<b>2,934</b>	<b>3,217</b>	<b>3,257</b>	<b>283</b>	<b>1.10</b>	<b>-40</b>	<b>.99</b>	<b>6,939</b>	<b>8,737</b>	
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	666	626	701	-40	.94	-75	.89	770	770	
1204-VV Sys Procurements (non VVSA)								27	519	
1206 - VV Field Weld Joint R&D	7	10	5	3	1.40	4	1.80	210	210	
1250 - Vacuum Vessel Fabrication	67	388	356	321	5.79	32	1.09	3,739	5,045	
<b>13 Conventional Coils</b>	<b>529</b>	<b>481</b>	<b>519</b>	<b>-48</b>	<b>.91</b>	<b>-38</b>	<b>.93</b>	<b>1,501</b>	<b>4,441</b>	
1301 - TF Design	529	481	519	-48	.91	-38	.93	738	738	
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	
<b>14 Modular Coils</b>	<b>10,789</b>	<b>10,630</b>	<b>10,919</b>	<b>-160</b>	<b>.99</b>	<b>-290</b>	<b>.97</b>	<b>18,020</b>	<b>26,200</b>	
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	2,159	2,052	2,046	-108	.95	6	1.00	2,676	2,676	
1404-MCWF R&D & 1st Prod Casting	2,478	2,455	2,448	-23	.99	6	1.00	2,513	2,513	
1405-Mod Coil Winding R&D Prep	168	168	168		1.00	0	1.00	168	168	
1406 - Mod. Coil Winding	1,936	1,927	2,158	-9	1.00	-232	.89	1,961	1,961	
1410 MC Twisted Racetrack Fabr	57	55	100	-2	.97	-44	.56	423	423	
1407 -Mod Coil Winding Facility	2,565	2,565	2,546	0	1.00	19	1.01	2,565	2,565	
1412 - Complete Winding Facilities	105	124	191	19	1.18	-67	.65	303	303	
1408-Mod Coil Winding Supplies	32	32	56	0	1.01	-23	.58	766	1,722	
1409 - Mod. Coil Test Stand	416	378	370	-38	.91	8	1.02	486	486	
1411-MCWF Fabrication S005242	330	331	293	1	1.00	38	1.13	4,622	8,378	
1431 - Modular Coil Local I&C									120	
1451 - Mod Coil Winding								994	4,342	
<b>15 Structures</b>	<b>54</b>	<b>54</b>	<b>28</b>	<b>0</b>	<b>1.00</b>	<b>25</b>	<b>1.90</b>	<b>224</b>	<b>1,381</b>	
1501 - Structures Design	54	54	28	0	1.00	25	1.90	224	224	
1550 - Structures Procurement									1,156	
<b>16 - Coil Services</b>									<b>1,036</b>	
<b>17 Cryostat and Base</b>	<b>186</b>	<b>164</b>	<b>126</b>	<b>-22</b>	<b>.88</b>	<b>39</b>	<b>1.31</b>	<b>305</b>	<b>1,321</b>	
1701-Cryostat&Base Sprt Strct Dsn	186	164	126	-22	.88	39	1.31	305	481	
1751 - Cryostat Procurement									509	
1752 - Base Support Structure Procurement									330	
<b>18 Field Period Assembly</b>	<b>613</b>	<b>669</b>	<b>555</b>	<b>56</b>	<b>1.09</b>	<b>114</b>	<b>1.20</b>	<b>1,485</b>	<b>5,118</b>	
1801-Field Period Assy	61	61	61	0	1.00	0	.99	61	61	
1802 - FP Assy Oversight&Support	250	250	175	0	1.00	76	1.43	409	954	
1803- FP Assy Toolg/Constructability	61	40	44	-21	.65	-4	.91	600	1,200	
1804-FP Assy Measurement	241	318	275	76	1.32	42	1.15	415	476	
1808 - TF/Mod Coil Sub-Assembly									697	
1810 - Field Period Assembly									1,731	
<b>19 1901 - Stellarator Core Mngtt&amp;Integr</b>	<b>1,063</b>	<b>1,043</b>	<b>1,015</b>	<b>-20</b>	<b>.98</b>	<b>28</b>	<b>1.03</b>	<b>1,534</b>	<b>2,421</b>	

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	CUMULATIVE TO DATE (from 4/1/03) (k)							Budget Thru FY05	TEC
	Budgeted Cost		ACWP	VARIANCES					
	BCWS	BCWP		Sch Var	SPI	Cst Var	CPI		
<b>2 - Plasma Heating,Fueling &amp; Vac Sys</b>	<b>369</b>	<b>369</b>	<b>347</b>	<b>0</b>	<b>1.00</b>	<b>22</b>	<b>1.06</b>	<b>369</b>	<b>780</b>
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
<b>3 - Diagnostics</b>	<b>245</b>	<b>245</b>	<b>233</b>	<b>1.00</b>	<b>12</b>	<b>1.05</b>	<b>506</b>	<b>1,117</b>	
# 3101 Magnetic Diagnostics								205	414
# 36 - Edge and Divertor Diagnostics									43
38 - Electron Beam (EB) Mapping									291
39 3901 - Diagnostics sys Integration	245	245	233	1.00	12	1.05	301	369	
<b>4 - Electrical Power Systems</b>	<b>345</b>	<b>357</b>	<b>286</b>	<b>12</b>	<b>1.03</b>	<b>70</b>	<b>1.25</b>	<b>709</b>	<b>3,216</b>
41 4101 - AC Power	157	157	81	0	1.00	77	1.95	157	485
43 4301 - DC Systems	39	51	42	12	1.30	9	1.21	239	446
44 4401 - Control & Protection	1	1	24	0	1.00	-23	.04	1	1,216
45 4501 - Power Sys Dsn & Integr	147	147	138	0	1.00	8	1.06	310	1,068
46 4601 - FCPC Bldg Mods	1	1	1	0	1.02		1.00	1	1
<b>5 - Central I&amp;C Systems</b>	<b>26</b>	<b>26</b>	<b>32</b>	<b>0</b>	<b>1.01</b>	<b>-6</b>	<b>.81</b>	<b>37</b>	<b>1,917</b>
51 51 - TCP/IP Infrastructure Systems									265
52 52 - Central Instrumentation & Control									571
53 53 - Data Acquisition & Fac Computing									328
54 54 - Facility Timing & Synchronization									207
55 55 - Real Time Plasma & Power Supply C									151
56 56 - Central Safety Interlock Systems									358
58 5801 -Central I&C Integr	26	26	32	0	1.01	-6	.81	37	37
<b>6 - Facility Systems</b>	<b>42</b>	<b>42</b>	<b>24</b>	<b>0</b>	<b>1.00</b>	<b>17</b>	<b>1.72</b>	<b>42</b>	<b>825</b>
61 61 - Water Systems									240
6163 - Facility Systems Support FY04	32	32	15	0	1.00	17	2.17	32	32
# 62 - Cryogenic Systems									440
63 63 - Utility Systems									103
# 6501 - Facility Systems Integration	9	9	9	1.00	0	1.00	9	9	
<b>7 - Test Cell Prep &amp; Machine Assy</b>	<b>429</b>	<b>422</b>	<b>374</b>	<b>-7</b>	<b>.98</b>	<b>48</b>	<b>1.13</b>	<b>726</b>	<b>4,211</b>
# 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 &	7	0		-7	.00	0		92	161
74 7401 - TC Prep & Mach Assy Planning	390	390	342	0	1.00	48	1.14	552	1,506
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
<b>8 - Project Oversight &amp; Support</b>	<b>4,189</b>	<b>4,188</b>	<b>4,442</b>	<b>0</b>	<b>1.00</b>	<b>-253</b>	<b>.94</b>	<b>6,008</b>	<b>10,579</b>
81 Project Management and Control	1,800	1,800	2,000	0	1.00	-200	.90	2,721	4,579
8101 - Project Management & Control	1,229	1,229	1,386	0	1.00	-158	.89	1,806	3,090
8102 - NCSX MIE Management ORNL	194	194	161	0	1.00	33	1.20	274	360
8998 - Allocations	377	377	452	0	1.00	-75	.83	641	1,129
82 Project Engineering	1,977	1,976	1,972	0	1.00	4	1.00	2,875	4,368
8202 - Engr Mgmt & Sys Eng Support	1,096	1,096	1,111	0	1.00	-16	.99	1,644	2,662
8203 - Design Integration	586	586	593		1.00	-7	.99	717	1,089
8204 - Systems Analysis	295	295	267		1.00	27	1.10	513	617
84 Project Physics	412	412	470	0	1.00	-58	.88	412	1,633
8401 - Project Physcis	310	310	323	0	1.00	-13	.96	310	310
8402 - Project Physics MIE ORNL	102	102	146	0	1.00	-44	.70	102	102
85 - Integrated Systems Testing									1,221
<b>Subtotal</b>	<b>21,812</b>	<b>21,906</b>	<b>22,158</b>	<b>94</b>	<b>1.00</b>	<b>-251</b>	<b>.99</b>	<b>38,404</b>	<b>73,300</b>
<b>Contingency</b>								<b>1,200</b>	<b>13,053</b>
<b>TOTAL PROJECT</b>								<b>39,604</b>	<b>86,353</b>