

**PPPL COST PERFORMANCE REPORT WORKBREAKDOWN STRUCTURE**

**NCSX**

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

**FEBRUARY FY05**

	CUMULATIVE TO DATE (from 4/1/03) (k)								ECP24	EAC	UNDER	Variance Explanation	
	Budgeted Cost			VARIANCES					Budget	EAC	(OVER)	Schedule	Cost
	BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI	Thru FY05	Thru FY05	(OVER)			
<b>PPPL and ORNL</b>	<b>K</b>								<b>K</b>	<b>K</b>			
<b>1 - Stellarator Core Systems</b>	<b>20,083</b>	<b>19,400</b>	<b>19,901</b>	<b>-683</b>	<b>.97</b>	<b>-501</b>	<b>.97</b>	<b>29,303</b>	<b>30,628</b>	<b>(1,263)</b>			
<b>12 Vacuum Vessel Systems</b>	<b>3,932</b>	<b>3,776</b>	<b>3,935</b>	<b>-156</b>	<b>.96</b>	<b>-159</b>	<b>.96</b>	<b>6,077</b>	<b>7,632</b>	<b>(1,555)</b>			
1201 - Vacuum Vessel Prelim Dsn	424	424	424	0	1.00	0	1.00	424	424	(0)			
1202 - Vacuum Vessel R&D	1,769	1,769	1,771		1.00	-2	1.00	1,769	1,771	(1)			
1203 - Vacuum Vessel Final Dsn	771	649	788	<b>-122</b>	<b>.84</b>	<b>-139</b>	<b>.82</b>	770	1,011	<b>(242)</b>	Heating/cooling, I&C, Insulation, and vessel supports final design. FDR slipped from Mar 3rd TO May 2nd (supports&analysis) and July 1st (insulation and heating/cooling). SPI .89 last month	Structural analysis by PPPL and design of supports,insulation and heating/cooling ORNL. CPI= .88 last month.	
1204-VV Sys Procurements (non VVSA)								27	399	<b>(372)</b>			
1206 - VV Field Weld Joint R&D	11	10	10	-1	.91	0	1.01	210	108	<b>102</b>			
1250 - Vacuum Vessel Fabrication	957	923	942	<b>-34</b>	<b>.96</b>	<b>-19</b>	<b>.98</b>	2,877	3,918	<b>(1,041)</b>			
<b>13 Conventional Coils</b>	<b>665</b>	<b>651</b>	<b>667</b>	<b>-14</b>	<b>.98</b>	<b>-17</b>	<b>.98</b>	<b>1,450</b>	<b>1,600</b>	<b>(150)</b>			
1301 - TF Design	665	651	667	-14	.98	-17	.98	849	840	<b>9</b>			
1302 - PF and CS Design								140	-	<b>140</b>			
1303 - Trim coil Design									-				
1351 - TF Coil Fabrication								461	760	<b>(299)</b>			
1352 - PF Coil Procurement									-				
1353 - CS Structure Procurement									-				
1354 - Trim Coil Procurement									-				
1355 - WBS 13 I&C Proc & Coil Assy									-				
<b>14 Modular Coils</b>	<b>13,205</b>	<b>12,715</b>	<b>13,253</b>	<b>-490</b>	<b>.96</b>	<b>-538</b>	<b>.96</b>	<b>18,260</b>	<b>17,757</b>	<b>503</b>			
1401 - Mod Coil Prel.Dsn	304	303	304	-1	1.00	-1	1.00	303	304	<b>(1)</b>			
1402 - Mod.Coil Analyses	238	239	239	1	1.00		1.00	239	239				
1403 - Modular Coil Final Design	2,451	2,159	2,330	<b>-292</b>	<b>.88</b>	<b>-171</b>	<b>.93</b>	2,676	2,890	<b>(214)</b>	Winding pack analysis and final design details for the type C production coil slipping. Three FRD's now planned; 3/23 for the cladding,, 4/29 for the chill plates and 5/31 for clamps ONE MONTH FLOAT TO THE JOULE MILESTONE OF JUNE 30th . Type A FDR slip to July 30th and type B tp Sept 30th. {SPI .90 last month} NOTE: SLIPPAGE OF FDR'S HAS REDUCED PROJECT FLOAT TO 3 1/2 MONTHS RELATIVE TO THE BASELINE SCHEDULE.		
1404-MCWF R&D & 1st Prod Casting	2,511	2,513	2,502	2	1.00	11	1.00	2,513	2,513	<b>(0)</b>			
1405-Mod Coil Winding R&D Prep	168	168	168		1.00	0	1.00	168	168	<b>0</b>			
1406 - Mod. Coil Winding	2,199	2,198	2,208	-1	1.00	-10	1.00	2,200	2,229	<b>(28)</b>			

**PPPL COST PERFORMANCE REPORT WORKBREAKDOWN STRUCTURE**

**NCSX**

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

**FEBRUARY FY05**

	CUMULATIVE TO DATE (from 4/1/03) (k)								ECP24	EAC	UNDER	Variance Explanation	
	Budgeted Cost			VARIANCES					Budget	EAC	UNDER	Schedule	Cost
	BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI	Thru FY05	Thru FY05	(OVER)			
<b>PPPL and ORNL</b>	<b>K</b>								<b>K</b>	<b>K</b>			
1410 MC Twisted Racetrack Fabr	252	136	440	-116	.54	-304	.31	423	694	(272)	Overtime and two shifts authorized to support a March completion (Joule Milestone date of 3/31/05). {SPI .64 last month}	Trial winding and straight tee specimen requiring more tech labor than planned. Winding taking almost double the time (incl OT). Metrology support significantly underestimated. CPI= .43 last month	
1407 -Mod Coil Winding Facility	2,564	2,565	2,546	1	1.00	19	1.01	2,565	2,546	19			
1412 - Complete Winding Facilities	243	294	315	51	1.21	-20	.93	303	435	(131)	3rd winding line components stopped (not req'd for flat funding plan). Credit taken for uncompleted work on 3rd line.		
1408-Mod Coil Winding Supplies	142	80	95	-62	.56	-15	.85	766	958	(192)	Behind on VPI misc materials and supplies (tubing, valves, fittings, manifolds) Not schedule critical. SPI= .73 last month	Pre-existing cost variance from FY04. {CPI .86 last month}	
1409 - Mod. Coil Test Stand	466	412	456	-54	.88	-44	.90	486	539	(53)	Crystat design and Installation of the cryo line still behind. Facility available for TRC by april 11th (supports TRC fab schedule with 2 wks float). Production facility ready by May 26th (7 month ahead of need). {SPI .89 last month}	{CPI .92 last month}	
1411-MCWF Fabrication S005242	1,667	1,648	1,651	-19	.99	-3	1.00	4,638	3,893	745	Second casting now secheduled for September delivery.NOTE: SLIPPAGE OF THE SECOND (AND SUBSEQUENT MCWF's) HAS REDUCED PROJECT FLOAT TO 3 1/2 MONTHS RELATIVE TO THE BASELINE SCHEDULE.		
1431 - Modular Coil Local I&C									-				
1451 - Mod Coil Winding								979	349	630			
<b>15 Structures</b>	<b>55</b>	<b>54</b>	<b>34</b>	<b>-1</b>	<b>.98</b>	<b>20</b>	<b>1.59</b>	<b>224</b>	<b>256</b>	<b>(32)</b>			
1501 - Structures Design	55	54	34	-1	.98	20	1.59	224	256	(32)			
1550 - Structures Procurement									-				
<b>16 16 - Coil Services</b>									-				
<b>17 Cryostat and Base</b>	<b>192</b>	<b>152</b>	<b>155</b>	<b>-40</b>	<b>.79</b>	<b>-3</b>	<b>.98</b>	<b>267</b>	<b>390</b>	<b>(123)</b>			
1701-Cryostat&Base Sprt Strct Dsn	192	152	155	-40	.79	-3	.98	267	290	(23)	Gettelfinger availability has been only 56% to the NCSX project total ytd.. {SPI .85 last month}		
1751 - Cryostat Procurement									-				
1752 - Base Support Structure Procurem									100	(100)			
<b>18 Field Period Assembly</b>	<b>854</b>	<b>860</b>	<b>720</b>	<b>6</b>	<b>1.01</b>	<b>140</b>	<b>1.19</b>	<b>1,490</b>	<b>1,552</b>				
1801-Field Period Assly	61	61	61		1.00	0	1.00	61	61	(0)			
1802 - FP Assy Oversight&Support	294	294	222	0	1.00	72	1.33	409	383	26		\$26k underrun forecast at year's end	
1803- FP Assy Toolg/Constructability	142	163	131	21	1.15	32	1.24	606	643	(37)			

**PPPL COST PERFORMANCE REPORT WORKBREAKDOWN STRUCTURE**

**NCSX**

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

**FEBRUARY FY05**

		CUMULATIVE TO DATE (from 4/1/03) (k)							ECP24			Variance Explanation	
		Budgeted Cost			VARIANCES				Budget	EAC	UNDER	Schedule	Cost
		BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI	Thru FY05	Thru FY05	(OVER)		
<b>PPPL and ORNL</b>		<b>K</b>							<b>K</b>	<b>K</b>			
	1804-FP Assy Measurement	357	342	306	-15	.96	36	1.12	415	466	(51)	This job will ultimately OVERRUN by \$51k. (\$60 positive cost variance thru fy04 and \$111 overrun this fy (Raftopolous metrology support))	
	1808 - TF/Mod Coil Sub-Assembly												
	1810 - Field Period Assembly												
<b>19</b>	<b>1901 - Stellarator Core Mngt&amp;Inte</b>	<b>1,180</b>	<b>1,192</b>	<b>1,137</b>	<b>12</b>	<b>1.01</b>	<b>55</b>	<b>1.05</b>	<b>1,534</b>	<b>1,442</b>	<b>92</b>		
<b>2</b>	<b>2 - Plasma Heating,Fueling &amp; Vac S</b>	<b>366</b>	<b>369</b>	<b>347</b>	<b>3</b>	<b>1.01</b>	<b>22</b>	<b>1.06</b>	<b>369</b>	<b>347</b>	<b>22</b>		
	21 - Fueling Systems												
	22 - Torus Vacuum Pumping Systems												
	2001-VPSS Gas& Cond Sys Oversight	59	60	63	1	1.02	-3	.96	60	63	(3)		
	2501 - Neutral Beam Refurbishment	307	309	284	2	1.01	25	1.09	309	284	25		
<b>3</b>	<b>3 - Diagnostics</b>	<b>264</b>	<b>280</b>	<b>260</b>	<b>16</b>	<b>1.06</b>	<b>19</b>	<b>1.07</b>	<b>502</b>	<b>486</b>	<b>16</b>		
#	3101 Magnetic Diagnostics		20	15	20		5	1.34	201	171	30		
#	36 - Edge and Divertor Diagnostic												
38	38 - Electron Beam (EB) Mapping									40	(40)		
39	3901 - Diagnostics sys Integration	264	260	246	-4	.98	14	1.06	301	274	27		
<b>4</b>	<b>4 - Electrical Power Systems</b>	<b>487</b>	<b>382</b>	<b>299</b>	<b>-105</b>	<b>.78</b>	<b>83</b>	<b>1.28</b>	<b>709</b>	<b>632</b>	<b>77</b>	Electrical engr and designer manpower just beginning to become available.	
41	4101 - AC Power	158	157	81	-1	1.00	77	1.95	157	81	77		
43	4301 - DC Systems	149	65	55	-84	.44	10	1.19	239	233	6		
44	4401 - Control & Protection	1	1	24	0	1.00	-23	.04	1	24	(23)		
45	4501 - Power Sys Dsn & Integr	178	157	138	-21	.88	19	1.14	310	292	17		
46	4601 - FCPC Bldg Mods	1	1	1	0	1.02		1.00	1	1			
<b>5</b>	<b>5 - Central I&amp;C Systems</b>	<b>29</b>	<b>29</b>	<b>33</b>		<b>1.00</b>	<b>-4</b>	<b>.89</b>	<b>37</b>	<b>37</b>	<b>0</b>		
51	51 - TCP/IP Infrastructure System:												
52	52 - Central Instrumentation & Co												
53	53 - Data Acquisition & Fac Comp												
54	54 - Facility Timing & Synchroniza												
55	55 - Real Time Plasma & Power St												
56	56 - Central Safety Interlock System												
58	5801 -Central I&C Integr	29	29	33		1.00	-4	.89	37	37	0		
<b>6</b>	<b>6 - Facility Systems</b>	<b>41</b>	<b>42</b>	<b>24</b>	<b>1</b>	<b>1.01</b>	<b>17</b>	<b>1.72</b>	<b>42</b>	<b>104</b>	<b>(63)</b>		
61	61 - Water Systems									80	(80)		
	6163 - Facility Systems Support FY04	32	32	15	0	1.01	17	2.17	32	15	17		
#	62 - Cryogenic Systems												
63	63 - Utility Systems												
#	6501 - Facility Systems Integration	9	9	9	0	1.04	0	1.00	9	9	0		

**PPPL COST PERFORMANCE REPORT WORKBREAKDOWN STRUCTURE**

**NCSX**

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

**FEBRUARY FY05**

		CUMULATIVE TO DATE (from 4/1/03) (k)							ECP24	EAC	UNDER	Variance Explanation	
		Budgeted Cost		VARIANCES					Budget	EAC	(OVER)	Schedule	Cost
		BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI	Thru FY05	Thru FY05			
<b>PPPL and ORNL</b>		<b>K</b>							<b>K</b>	<b>K</b>			
<b>7 - Test Cell Prep &amp; Machine Assy</b>		<b>462</b>	<b>448</b>	<b>478</b>	<b>-14</b>	<b>.97</b>	<b>-30</b>	<b>.94</b>	<b>723</b>	<b>1,000</b>	<b>(277)</b>		
#	7101 - Shield Wall Modif	32	32	32	0	1.00		1.00	32	32			
72	7201 - Control Room Walls&Floor:								50	50	0		
73	7301 - Platform Design &								92	162	(70)		
74	7401 - TC Prep & Mach Assy Plan:	430	416	446	-14	.97	-30	.93	549	704	(155)	NCSX test cel electrical outlet installation not started MAY BE DELAYED UNTIL FY06 IF SHIELD WALL IS NOT INSTALL BY GPP.	
<b>75 Machine Assembly</b>									-	52	(52)		
	7501 - Construction Support Crew												
	7502 - Test Cell Facility Preparations									52	(52)		
	7503 - Machine Assembly												
<b>76 7601 - Tooling Design &amp; Fabricati</b>													
<b>8 - Project Oversight &amp; Support</b>		<b>4,904</b>	<b>4,906</b>	<b>4,942</b>	<b>2</b>	<b>1.00</b>	<b>-37</b>	<b>.99</b>	<b>6,270</b>	<b>6,158</b>	<b>113</b>		
<b>81 Project Management and Control</b>		<b>2,203</b>	<b>2,203</b>	<b>2,246</b>		<b>1.00</b>	<b>-43</b>	<b>.98</b>	<b>2,867</b>	<b>2,897</b>	<b>(30)</b>		
	8101 - Project Management & Control	1,535	1,535	1,551		1.00	-16	.99	1,952	1,943	9		
	8102 - NCSX MIE Management ORNL	218	218	184		1.00	34	1.18	274	235	40		
	8998 - Allocations	450	450	511		1.00	-60	.88	641	719	(79)	Allocations underbudgeted in FY05 by 10% plus costing at higher than linear rate. Forecast year end variance of \$79k {CPI .89 last month}	
<b>82 Project Engineering</b>		<b>2,233</b>	<b>2,233</b>	<b>2,227</b>		<b>1.00</b>	<b>6</b>	<b>1.00</b>	<b>2,933</b>	<b>2,791</b>	<b>142</b>		
	8202 - Engr Mgmt & Sys Eng Support	1,248	1,248	1,257		1.00	-9	.99	1,644	1,572	73		
	8203 - Design Integration	623	623	629		1.00	-7	.99	717	673	44		
	8204 - Systems Analysis	355	355	335		1.00	20	1.06	513	488	26		
	8205 - Dimensional Control Coord.	7	7	5		1.00	1	1.27	58	58			
<b>84 Project Physics</b>		<b>468</b>	<b>470</b>	<b>470</b>	<b>2</b>	<b>1.00</b>	<b>0</b>	<b>1.00</b>	<b>470</b>	<b>470</b>	<b>(0)</b>		
	8401 - Project Physcis	322	324	324	2	1.01	0	1.00	324	324	0		
	8402 - Project Physics MIE ORNL	146	146	146		1.00	0	1.00	146	146	(0)		
	85 - Integrated Systems Testing												
<b>Subtotal</b>		<b>26,637</b>	<b>25,856</b>	<b>26,285</b>	<b>-781</b>	<b>.97</b>	<b>-430</b>	<b>.98</b>	<b>37,955</b>	<b>39,392</b>	<b>(1,375)</b>		
<b>Contingency/Management Reserve</b>									<b>3,300</b>				
<b>TOTAL PROJECT</b>									<b>41,255</b>	<b>39,392</b>	<b>1,863</b>		
	Thru fy04	20,640	19652	19744	-988	0.95	-92	1.00					
	FY05 performance	5,997	6,204	6,541	207	1.03	-338	0.95					
	Thru NOVEMBER	21,812	21906	22158	94	1.00	-252	0.99					
	Thru DECEMBER	23,813	23042	23434	-771	0.97	-392	0.98					#
	Thru JANUARY	25,866	24310	24639	-1556	0.94	-329	0.99					#