

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

**NCSX**

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

**NOVEMBER 2005**

	CUMULATIVE TO DATE (from 4/1/03) (k)								ECP39	Variance Explanation	
	Budgeted Cost			VARIANCES				Budget	Schedule	Cost	
	BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI	Thru FY06			
<b>1 - Stellarator Core Systems</b>	<b>32,783</b>	<b>31,775</b>	<b>31,993</b>	<b>-1,008</b>	<b>.97</b>	<b>-218</b>	<b>.99</b>	<b>44,349</b>			
<b>12</b>	<b>7,633</b>	<b>7,037</b>	<b>7,059</b>	<b>-596</b>	<b>.92</b>	<b>-21</b>	<b>1.00</b>	<b>9,159</b>			
1201 - Vacuum Vessel Prelim Dsn	424	424	424		1.00	0	1.00	424			
1202 - Vacuum Vessel R&D	1,770	1,770	1,771		1.00	-1	1.00	1,770			
1203 - Vacuum Vessel Final Dsn	1,060	995	984	<b>-65</b>	<b>.94</b>	<b>11</b>	<b>1.01</b>	1,098	Final assy requirement & assy drawings. Final design of heater tape system and VV dsn for SXR Diag behind. Final closeout FDR planned for Dec 15th pushed out to Feb 28. Emphasis being placed on near term procurement packages.		
1204-VV Sys Procurements (non VVSA)	1		12	-1		-12		193			
1206 - VV Field Weld Joint R&D	16	16	16		1.00	0	1.00	16			
1250 - Vacuum Vessel Fabrication	4,363	3,833	3,852 (1)	<b>-530</b>	<b>.88</b>	<b>-19</b>	<b>1.00</b>	5,658	Port welding difficulties as well as loss of second shift metrology support has delay delivery. 1st sector delayed from Dec to Mar 29; 2nd sector delayed from Feb to May 18th; 3rd sector delayed from Mar to July 24th.		
<b>13</b>	<b>1,676</b>	<b>1,624</b>	<b>1,659</b>	<b>-52</b>	<b>.97</b>	<b>-35</b>	<b>.98</b>	<b>2,765</b>			
1301 - TF Design	946	944	949	-2	1.00	-5	.99	946			
1302 - PF and CS Design	3			-3				11			
1350 - TF Coil Fabr Prep	528	487	489	<b>-41</b>	<b>.92</b>	<b>-3</b>	<b>.99</b>	743	Fabrication of Lift fixture and mandral on hold pending results of China visit		
1351 - TF Coil Fabr Supplies	199	180	215	<b>-19</b>	<b>.91</b>	<b>-35</b>	<b>.84</b>	811	G-11 and lead block fabrication behind.	Kalish oversight under estimated.	
1361 - TF Fabrication		13	6					254			
<b>14</b>	<b>19,982</b>	<b>19,648</b>	<b>19,785</b>	<b>-335</b>	<b>.98</b>	<b>-137</b>	<b>.99</b>	<b>27,311</b>			
1401 - Mod Coil Prel.Dsn	304	304	304		1.00	0	1.00	304			
1402 - Mod.Coil Analyses	239	239	239		1.00	0	1.00	239			
1403 - Modular Coil Final Design (includes job 1421 coil interface hw dsn)	3,246	3,186	3,274	<b>-60</b>	<b>.98</b>	<b>-89</b>	<b>.97</b>	3,339	Type C assy dwgs late. Final closeout of Type C design slipped from Nov 1 to mid December to February. Signed-off assy drawings not yet available for the winding operation. Consequences???		

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1416 - Mod Coil Type A&B Final Design		255	131	75	-125	.51	55	1.73	756	Type A hardware & MCWF mods behind which may impact MTM machining of A-1. FDR for type A slipped from January to February.	
1404-MCWF R&D & 1st Prod Casting		2,544	2,544	2,544		1.00	0	1.00	2,544		
1405-Mod Coil Winding R&D Prep		168	168	168		1.00	0	1.00	168		
1406 - Mod. Coil Winding Facility		2,247	2,247	2,247		1.00	0	1.00	2,247		
1407 -Mod Coil Winding Facility		2,546	2,546	2,546		1.00	0	1.00	2,546		
1408-Mod Coil Winding Supplies		740	645	654	-95	.87	-9	.99	1,638	Hardware (cladding, chill plates, lead hardware) all behind. Detail BOM being used to prioritize just-in-time deliveries to support winding	
1409 - Mod. Coil Test Stand		916	916	916		1.00	0	1.00	916		
1410 MC Twisted Racetrack Fabr		1,050	1,050	1,050		1.00	0	1.00	1,050		
1411-MCWF Fabrication S005242		4,573	4,510	4,465 (2)	-62	.99	46	1.01	8,098	C-2 delivery 2 weeks late. C6 casting to be re-poured.	
1412 - Complete Winding Facilities		537	537	537		1.00	0	1.00	537		
1413 - Mod Coil Fracture Analysis		28	28	28		1.00	0	1.01	28		
1414 - Coil Testing		164	164	180		1.00	-16	.91	276		
1415 - Dimensional Control Testing		24	24	24		1.00	0	1.00	24		
1419 - Winding Facility Modification		48	48	48		1.00	0	.99	48		
1451 - Mod Coil Winding		354	361	449	8	1.02	-88	.80	2,553	Some cladding needed to be removed and re-set.	
1459 - MC Unplanned rework				37			-37			Unbudget rework to C-1 casting as well as misc unplanned support to the winding operation.	
<b>15</b>		<b>78</b>	<b>80</b>	<b>82</b>	<b>2</b>	<b>1.03</b>	<b>-2</b>	<b>.97</b>	<b>208</b>		
1501 - Structures Design		78	80	82	2	1.03	-2	.97	208		
<b>16</b>	<b>16 - Coil Services</b>								-		
<b>17</b>		<b>376</b>	<b>372</b>	<b>388</b>	<b>-4</b>	<b>.99</b>	<b>-16</b>	<b>.96</b>	<b>377</b>		
1701-Cryost&Base Sprrt Strct Dsn		376	372	388	-4	.99	-16	.96	377		
<b>18</b>		<b>1,462</b>	<b>1,444</b>	<b>1,445</b>	<b>-19</b>	<b>.99</b>	<b>-1</b>	<b>1.00</b>	<b>2,526</b>		
1801-Field Period Assly		61	61	61		1.00	0	1.00	61		
1802 - FP Assy Oversight&Support		392	392	398	0	1.00	-6	.98	718		
1803- FP Assy Toolg/Constructability		558	548	538	-10	.98	10	1.02	933		
1804-FP Assy Measurement		440	438	447	-2	.99	-10	.98	452		
1810 - Field Period Assembly		12	6		-6	.47	6		362		
<b>19</b>	<b>1901 - Stellarator Core Mngtt&amp;Inte</b>	<b>1,576</b>	<b>1,570</b>	<b>1,575</b>	<b>-6</b>	<b>1.00</b>	<b>-5</b>	<b>1.00</b>	<b>2,003</b>		

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	Budgeted Cost			VARIANCES				Budget	Schedule	Cost	
	BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI	Thru FY06			
<b>2 - Plasma Heating,Fueling &amp; Va</b>	<b>349</b>	<b>349</b>	<b>347</b>		<b>1.00</b>	<b>2</b>	<b>1.01</b>	<b>349</b>			
2001-VPS Gas& Cond Sys Oversight	64	64	63		1.00	1	1.02	64			
2501 - Neutral Beam Refurbishment	285	285	284		1.00	1	1.00	285			
<b>3 - Diagnostics</b>	<b>504</b>	<b>444</b>	<b>485</b>		<b>-60</b>	<b>.88</b>	<b>-40</b>	<b>.92</b>	<b>770</b>		
<b>31 3101 Magnetic Diagnostics</b>	<b>217</b>	<b>158</b>	<b>199</b>		<b>-60</b>	<b>.73</b>	<b>-41</b>	<b>.79</b>	<b>425</b>	VV saddle loop and termination boxes behind.	
39 3901 - Diagnostics sys Integration	286	286	286		1.00	1	1.00	345			
<b>4 - Electrical Power Systems</b>	<b>627</b>	<b>589</b>	<b>632</b>		<b>-38</b>	<b>.94</b>	<b>-43</b>	<b>.93</b>	<b>742</b>		
41 4101 - AC Power	107	107	107		1.00	0	1.00	107			
43 4301 - DC Systems	254	277	315		24	1.09	-38	.88	314	?	
44 4401 - Control & Protection	55	59	70		4	1.07	-11	.85	55		
45 4501 - Power Sys Dsn & Integr	210	145	138		-65	.69	7	1.05	265	C-site cabling design behind.	
46 4601 - FCPC Bldg Mods	1	1	1		1.00	0	.77	1			
<b>5 - Central I&amp;C Systems</b>	<b>33</b>	<b>33</b>	<b>33</b>		<b>1.00</b>	<b>0</b>	<b>1.00</b>	<b>33</b>			
58 5801 -Central I&C Integr	33	33	33		1.00	0	1.00	33			
<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>			
6163 - Facility Systems Support FY04	15	15	15		1.00	0	1.01	15			
62 - Cryogenic Systems								-			
63 - Utility Systems								-			
6501 - Facility Systems Integration	9	9	9		1.00	0	.96	9			
<b>7 - Test Cell Prep &amp; Machine Ass</b>	<b>897</b>	<b>899</b>	<b>928</b>		<b>2</b>	<b>1.00</b>	<b>-29</b>	<b>.97</b>	<b>915</b>		
7101 - Shield Wall Modif	32	32	32		1.00	0	1.00	32			
7201 - Control Room Walls&Floors								-			
7301 - Platform Design &	71	72	76		1	1.01	-4	.95	71		
7401 - TC Prep & Mach Assy Plan	794	795	820		1	1.00	-25	.97	812		
<b>8 - Project Oversight &amp; Support</b>	<b>6,728</b>	<b>6,728</b>	<b>6,751</b>		<b>0</b>	<b>1.00</b>	<b>-23</b>	<b>1.00</b>	<b>8,665</b>		
<b>81</b>	<b>3,175</b>	<b>3,175</b>	<b>3,185</b>		<b>1.00</b>	<b>-10</b>	<b>1.00</b>	<b>4,126</b>			
8101 - Project Management & Control	2,057	2,058	2,068		0	1.00	-11	.99	2,588		
8102 - NCSX MIE Management ORNL	284	283	286		0	1.00	-2	.99	429		
8998 - Allocations	834	834	831		0	1.00	3	1.00	1,109		
<b>82</b>	<b>3,083</b>	<b>3,084</b>	<b>3,096</b>		<b>0</b>	<b>1.00</b>	<b>-13</b>	<b>1.00</b>	<b>4,069</b>		
8202 - Engr Mgmt & Sys Eng Support	1,718	1,718	1,739		1.00	-21	.99	2,241			
8203 - Design Integration	709	709	701		1.00	8	1.01	826			
8204 - Systems Analysis	536	536	558		0	1.00	-22	.96	724		
8205 - Dimensional Control Coord.	120	121	98		0	1.00	22	1.23	278		
<b>84</b>	<b>470</b>	<b>470</b>	<b>470</b>		<b>1.00</b>	<b>0</b>	<b>1.00</b>	<b>470</b>			
8401 - Project Physcis	324	324	324		1.00	0	1.00	324			
8402 - Project Physics MIE ORNL	146	146	146		1.00	0	1.00	146			

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										<b>ECP39</b>		<b>Variance Explanation</b>	
<b>CUMULATIVE TO DATE (from 4/1/03) (k)</b>										<b>Budget</b>			
<b>Budgeted Cost</b>				<b>VARIANCES</b>				<b>Thru FY06</b>					
<b>BCWS</b>	<b>BCWP</b>	<b>ACWP</b>		<b>Sch Var</b>	<b>SPI</b>	<b>Cst Var</b>	<b>CPI</b>			<b>Schedule</b>	<b>Cost</b>		
<b>Subtotal</b>	<b>41,945</b>	<b>40,842</b>	<b>41,193</b>		<b>-1,103</b>	<b>.97</b>	<b>-351</b>	<b>.99</b>	<b>55,848</b>				
<b>Contingency/Management Reserve</b>									<b>1,295</b>				
<b>Anticipated Incremental Funding</b>									<b>1,370</b>				
<b>Anticipated 3% hold back on FY06 BA</b>									<b>(518)</b>				
<b>DCMA QA Inspection services</b>									<b>75</b>				
<b>TOTAL PROJECT</b>									<b>58,070</b>				
(1) Reflects accrual increase of \$ 39k based on MTM's June earned value report													
(2) Reflects accrual increase of \$ 47 k based on EIO's June earned value report													
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)	38,562	36,721	38,314		-1841	0.95	-1593	0.96					
Thru Oct (ecp-39)	40,272	39,782	39,799		-490	0.99	-17	1.00					