

**Princeton University Plasma Physics Laboratory  
PPPL COST PERFORMANCE REPORT WORK BREAKDOWN STRUCTURE**

**NCSX**

**FEBRUARY 2007**

\*\*\*\* Cumulative to date FY03, FY04, FY05, FY06 and FY07\*\*\*\*

**FEBRUARY 2007**

CURRENT MONTH

CUMULATIVE TO DATE (from 4/1/03) (k)

**ECP 53**

Variance Explanation

	BCWS	BCWP	ACWP	Budgeted Cost				VARIANCES				Budget	Schedule	Cost
				BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI	Thru FY07			
<b>1 - Stellarator Core Systems</b>				<b>49,694</b>	<b>49,384</b>	<b>51,220</b>		<b>-310</b>	<b>.99</b>	<b>-1,836</b>	<b>.96</b>	<b>57,483</b>		
<b>12 Vacuum Vessel Systems</b>				<b>9,561</b>	<b>9,567</b>	<b>9,695</b>		<b>6</b>	<b>1.00</b>	<b>-127</b>	<b>.99</b>	<b>9,650</b>		
CLOSED 1201 - Vacuum Vessel Prelim Dsn				424	424	424			1.00	0	1.00	424		
CLOSED 1202 - Vacuum Vessel R&D				1,770	1,770	1,771			1.00	-1	1.00	1,770		
CLOSED 1203 - Vacuum Vessel Final Dsn				1,218	1,218	1,217			1.00	0	1.00	1,218		
CLOSED 1206 - VV Field Weld Joint R&D				16	16	16			1.00	0	.98	16		
CLOSED 1250 - Vacuum Vessel Fabrication				5,808	5,808	5,815			1.00	-7	1.00	5,808		
1204-VV Sys Procurements (non VVSA)	3	9	52	326	332	452	6	1.02	-120	.73	414		unbudgeted shop work on saddle parts, Grafoil gaskets, thermocouple pads, braket stops.	
<b>13 Conventional Coils</b>				<b>3,274</b>	<b>3,153</b>	<b>3,146</b>		<b>-121</b>	<b>.96</b>	<b>7</b>	<b>1.00</b>	<b>3,967</b>		
CLOSED 1301 - TF Design				970	971	970	1	1.00	1	1.00	971			
1302 - PF Design						19				-19		70		
1303 - Central Solenoid Support Design				106	117	155	11	1.10	-38	.76	106		Pre-existing cost variance.	
1350 - TF Coil Fabr Prep				547	547	536		1.00	11	1.02	547			
1351 - TF Coil Fabr Supplies			12	470	461	475	-9	.98	-14	.97	470			
1361 - TF Fabrication	104	24	23	1,181	1,057	990	-124	.90	67	1.07	1,803		First TF Coil delivery slipped by two months to April 30th. No impact to	
1352 - PF Coil Procurement											-			
1353 - CS Structure Procurement											-			
<b>14 Modular Coils</b>				<b>31,049</b>	<b>30,922</b>	<b>32,565</b>		<b>-126</b>	<b>1.00</b>	<b>-1,643</b>	<b>.95</b>	<b>36,071</b>		
CLOSED 1401 - Mod Coil Prel.Dsn				304	304	304		1.00	0	1.00	304			
CLOSED 1402 - Mod.Coil Analyses				239	239	239		1.00	0	1.00	239			
CLOSED 1404-MCWF R&D & 1st Prod Casting				2,543	2,543	2,554		1.00	-11	1.00	2,543			
CLOSED 1405-Mod Coil Winding R&D Prep				168	168	168		1.00		1.00	168			
CLOSED 1406 - Mod. Coil Winding Facility				2,263	2,263	2,263		1.00	0	1.00	2,263			
CLOSED 1407 -Mod Coil Winding Facility				2,571	2,571	2,570		1.00	2	1.00	2,571			
CLOSED 1410 MC Twisted Racetrack Fabr				1,050	1,050	1,050		1.00	0	1.00	1,050			
CLOSED 1412 - Complete Winding Facilities				541	541	541		1.00	0	1.00	541			
CLOSED 1413 - Mod Coil Fracture Analysis				28	28	28		1.00	0	1.01	28			
CLOSED 1409 - Mod. Coil Test Stand				826	826	833		1.00	-7	.99	826			
CLOSED 1414 - Coil Testing				675	675	639		1.00	36	1.06	675			
CLOSED 1415 - Dimensional Control Testing				24	24	24		1.00	0	1.00	24			
CLOSED 1419 - Winding Facility Modification				55	55	48		1.00	7	1.14	55			
Mod Coil Design: Job 1403, 1416 Coil Design, Job 1421 Interface design	341	97	88	4,592	4,325	4,280	-267	.94	45	1.01	5,617		Interface hardware R&D, design and procurement.	
Job 1429 Interface R&D/Test	31	10	28	120	103	94	-17	.86	9	1.09	368			
1408-Mod Coil Winding Supplies	67	49	76	1,868	1,879	2,280	11	1.01	-401	.82	2,245		Cost variance for February = 27 due to purchase of refrig tubing, coil cvable connections, chemflor tubing, kapton tape.	
1411-MCWF Fabrication S005242	304	219	213	9,211	9,423	9,471	212	1.02	-48	.99	9,844			
1451 - Mod Coil Winding (incl 1459 punch list and unplanned work)	350	274	380	3,910	3,845	5,122	-65	.98	-1,277	.75	6,650		Metrology driven delays. total float 4 1/2 months. Metrology driven delays. Cost variance for February =87k CPI for Feb = .72	

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CURRENT MONTH

CUMULATIVE TO DATE (from 4/1/03) (k)

**ECP 53**

Variance Explanation

		CURRENT MONTH			CUMULATIVE TO DATE (from 4/1/03) (k)								Budget Thru FY07	Variance Explanation	
		BCWS	BCWP	ACWP	Budgeted Cost			VARIANCES				Schedule		Cost	
					BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI				
	1460 - 3rd Winding Fixture			0	60	60	57		0	.99	3	1.05	60		
<b>15</b>	<b>Structures</b>				<b>163</b>	<b>171</b>	<b>244</b>		<b>8</b>	<b>1.05</b>	<b>-73</b>	<b>.70</b>	<b>348</b>		
	1501 - Structures Design	46	27	54	163	171	240		8	1.05	-69	.71	348		
	1550 - Structures Procurement						4				-4				
<b>16</b>	<b>1601 - Coil Services</b>	5			8	3	3		-5	.37	0	1.07	23		
<b>17</b>	<b>Cryostat and Base</b>				<b>427</b>	<b>425</b>	<b>417</b>		<b>-2</b>	<b>1.00</b>	<b>8</b>	<b>1.02</b>	<b>514</b>		
	1701-Cryostat design	2			427	425	417		-2	1.00	8	1.02	380		
	1702-Base Support structure design												133		
	1751 - Cryostat Procurement												-		
	1752 - Base Support Structure Procurement												1		
<b>18</b>	<b>Field Period Assembly</b>				<b>3,118</b>	<b>3,054</b>	<b>3,077</b>		<b>-64</b>	<b>.98</b>	<b>-23</b>	<b>.99</b>	<b>4,678</b>		
	CLOSED 1801-Field Period Assy				65	65	64			1.00	0	1.00	65		
	1802 - FP Assy Oversight Support	59	58	42	969	968	870		-1	1.00	98	1.11	1,458		
	1803 - FP Assy Tooling/Constructability	70	10	27	900	873	1,078		-27	.97	-205	.81	994	Station 3 drawings and stress analysis.	Designer time underestimated.
	1804-FP Assy Measurement				564	564	559			1.00	5	1.01	564		
	1805 - FP Assy Hardware & Fixt Procurement				3	2	7		-1	.73	-4	.35	193		
	1806 - FP Assy Specs and Drawings	17	10	1	89	32	20		-57	.36	12	1.62	221	Stage 2 specifications and stage 5 drawings	
	1810 - Field Period Assembly plus 1859 unplanned work	115	123	57	528	550	478		23	1.04	72	1.15	1,183		
<b>19</b>	<b>1901 - Stellarator Core Mngt &amp; Integr</b>	22	16	20	<b>2,095</b>	<b>2,089</b>	<b>2,074</b>		<b>-6</b>	<b>1.00</b>	<b>15</b>	<b>1.01</b>	<b>2,232</b>		
<b>2 - Plasma Heating, Fueling &amp; Vac Sys</b>					<b>348</b>	<b>348</b>	<b>348</b>			<b>1.00</b>	<b>0</b>	<b>1.00</b>	<b>348</b>		
	CLOSED 2001-VPS Gas& Cond Sys Oversight				64	64	63			1.00	1	1.01	63		
	CLOSED 2501 - Neutral Beam Refurbishment				285	285	285			1.00	0	1.00	285		
<b>3 - Diagnostics</b>					<b>833</b>	<b>766</b>	<b>876</b>		<b>-67</b>	<b>.92</b>	<b>-110</b>	<b>.87</b>	<b>877</b>		
<b>31</b>	<b>3101 Magnetic Diagnostics</b>	25	5	31	474	407	540		-67	.86	-133	.75	492	Saddle loop termination box fabrication, Mod coil co-wound loops fabrication and Rogowski coil design	
<b>39</b>	<b>3901 - Diagnostics sys Integration</b>	5	4	3	359	359	337		0	1.00	22	1.07	385		
<b>4 - Electrical Power Systems</b>					<b>722</b>	<b>724</b>	<b>720</b>		<b>2</b>	<b>1.00</b>	<b>4</b>	<b>1.01</b>	<b>714</b>		
<b>41</b>	<b>4101 - AC Power</b>	17			109	109	107			1.00	2	1.02	93		
<b>43</b>	<b>4301 - DC Systems</b>				382	383	370		1	1.00	13	1.04	382		
<b>44</b>	<b>4401 - Control &amp; Protection</b>				82	83	81		1	1.01	2	1.03	82		
<b>45</b>	<b>4501 - Power Sys Dsn &amp; Integr</b>				148	148	161			1.00	-13	.92	155		
<b>46</b>	<b>4601 - FCPC Bldg Mods</b>				1	1	1			1.00		1.00	1		
<b>5 - Central I&amp;C Systems</b>					<b>46</b>	<b>46</b>	<b>33</b>			<b>1.00</b>	<b>13</b>	<b>1.38</b>	<b>46</b>		
<b>58</b>	<b>5801 -Central I&amp;C Integr</b>				46	46	33			1.00	13	1.38	46		
<b>6 - Facility Systems</b>					<b>24</b>	<b>24</b>	<b>24</b>			<b>1.00</b>	<b>0</b>	<b>1.01</b>	<b>24</b>		
	6163 - Facility Systems Support FY04				15	15	15			1.00	0	1.01	15		
	CLOSED 6501 - Facility Systems Integration				9	9	9			1.00	0	1.00	9		
<b>7 - Test Cell Prep &amp; Machine Assy</b>					<b>942</b>	<b>942</b>	<b>953</b>		<b>0</b>	<b>1.00</b>	<b>-12</b>	<b>.99</b>	<b>965</b>		
	CLOSED 7101 - Shield Wall Modif				33	33	33			1.00	0	1.00	33		
	7301 - Platform Design &				76	76	76			1.00	0	1.00	75		
	7401 - TC Prep & Mach Assy Planning				833	833	845		0	1.00	-12	.99	857		
<b>8 - Project Oversight &amp; Support</b>					<b>9,788</b>	<b>9,783</b>	<b>10,043</b>		<b>-5</b>	<b>1.00</b>	<b>-260</b>	<b>.97</b>	<b>11,086</b>		
<b>81</b>	<b>Project Management and Control</b>				4,566	4,566	4,633			1.00	-67	.99	5,127		

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Variance Explanation

	BCWS	BCWP	ACWP	BUDGETED COST							CPI	Budget Thru FY07	Schedule	Cost
				Budgeted Cost			VARIANCES							
				BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI				
8101 - Project Management & Control	47	47	33	2,777	2,777	2,749			1.00	28	1.01	3,108		
8102 - NCSX MIE Management ORNL	-2	-2	17	457	457	520			1.00	-63	.88	497		
8998 - Allocations	29	29	27	1,332	1,332	1,364			1.00	-32	.98	1,522		
<b>82 Project Engineering</b>				<b>4,752</b>	<b>4,747</b>	<b>4,940</b>	<b>-5</b>	<b>1.00</b>	<b>-193</b>	<b>.96</b>		<b>5,488</b>		
8202 - Engr Mgmt & Sys Eng Support	47	40	55	2,483	2,476	2,530	-7	1.00	-54	.98		2,798		
8203 - Design Integration	15	15	16	930	930	936		1.00	-6	.99		1,097		
8204 - Systems Analysis	20	20	59	1,071	1,071	1,209		1.00	-138	.89		1,220		
8205 - Dimensional Control Coord.	10	9	20	259	265	264	6	1.02	1	1.00		333		
8210 - Project Rebaseline Estimating	9	5	1	9	5	1	-4	.53	4	7.37		40		
<b>84 Project Physics</b>				<b>470</b>	<b>470</b>	<b>470</b>		<b>1.00</b>	<b>0</b>	<b>1.00</b>		<b>471</b>		
CLOSED 8401 - Project Physics				324	324	324		1.00	0	1.00		325		
CLOSED 8402 - Project Physics MIE ORNL				146	146	146		1.00	-1	1.00		146		
<b>Subtotal</b>	<b>1,757</b>	<b>1,098</b>	<b>1,337</b>	<b>62,398</b>	<b>62,017</b>	<b>64,218</b>	<b>-381</b>	<b>.99</b>	<b>-2,201</b>	<b>.97</b>		<b>71,541</b>		
<b>Contingency set-aside for cumulative cost variance</b>												<b>2,201</b>		
<b>FY07 Contingency free balance</b>												<b>414</b>		
<b>DCMA QA Inspection services</b>												<b>75</b>		
<b>TOTAL PROJECT</b>												<b>74,232</b>		
												<b>74,232</b>		
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	BCWR	Conting.		
PARS for OCT				1,710	3,061	1,485	-90	0.94	-17	0.98				
Thru Oct (ecp-39)				40,272	39,782	39,799	-490	0.99	-17	1.00		42,943	9,600	22.4%
PARS for NOV				1,673	1,060	1,394	-613	0.63	-334	0.76				<b>22.3%</b>
Thru NOV (ecp-39)				41,945	40,842	41,193	-1103	0.97	-351	0.99		41,883	9,600	22.9%
PARS for DEC				1,274	896	1,331	-378	0.70	-435	0.67				<b>22.1%</b>
Thru DEC (ecp-39)				43,219	41,738	42,524	-1481	0.97	-786	0.98		40,987	9,600	23.4%
PARS for JAN				1,633	1,594	1,647	-39	0.98	-53	0.97				<b>21.5%</b>
Thru JAN (ecp-39)				44,852	43,332	44,171	-1520	0.97	-839	0.98		39,393	9,600	24.4%
PARS for FEB				1,471	1,431	2,001	-40	0.97	-570	0.72				<b>22.2%</b>
Thru FEB (ecp-39)				46,323	44,763	46,172	-1560	0.97	-1409	0.97		37,962	9,600	25.3%
PARS for MAR				1,900	1,587	1,860	-313	0.84	-273	0.85				<b>21.6%</b>
Thru MAR (ecp-043)				48,223	46,350	48,032	-1873	0.96	-1682	0.96		37,255	8,720	23.4%
PARS for APR				1,247	1,297	1,712	50	1.04	-415	0.76				<b>18.9%</b>

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**ECP 53**

Variance Explanation

Budgeted Cost

VARIANCES

Budget  
Thru FY07

Schedule

Cost

BCWS

BCWP

ACWP

BCWS

BCWP

ACWP

Sch Var

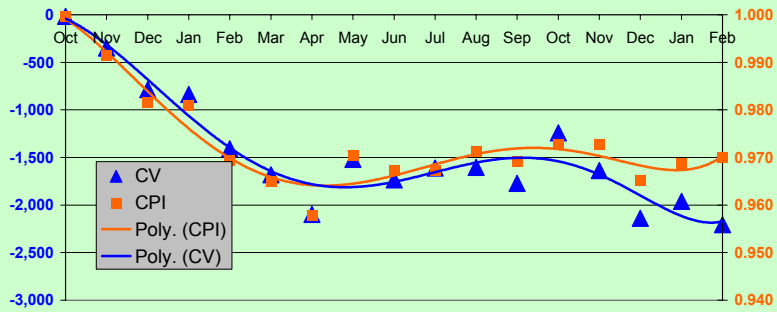
SPI

Cst Var

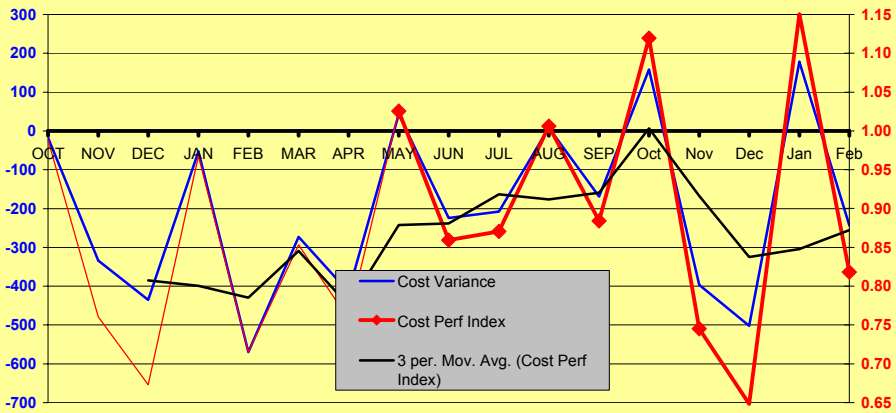
CPI

		CURRENT MONTH			CUMULATIVE TO DATE (from 4/1/03) (k)							Budget Thru FY07	Variance Explanation	
		BCWS	BCWP	ACWP	Budgeted Cost			VARIANCES					Schedule	Cost
					BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI			
Thru APR (ecp-043)					49,470	47,647	49,744	-1823	0.96	-2097	0.96	35,958	8,720	24.3%
<i>PARS for MAY</i>					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	34,269	8,171	23.8%
<i>PARS for JUNE</i>					1,375	1,367	1,581	-8	0.99	-214	0.86		-	19.4%
Thru June (ECP-45)					51,870	51,252	52,986	-618	0.99	-1734	0.97	32,902	8,171	24.8%
<i>PARS for JULY</i>					1,563	1,751	1,629	188	1.12	123	1.08			19.6%
Thru July (ECP-49 & 50)					53,433	53,003	54,615	-430	0.99	-1611	0.97	31,448	7,874	25.0%
<i>PARS for AUG</i>					1,912	1,323.6	1,315.5	-588	0.69	8	1.01			19.9%
Thru August (ECP 49 & 50)					55,345	54,327	55,930	-1018	0.98	-1603	0.97	30,124	7,874	26.1%
<i>PARS for SEP</i>					1,290	1,288	1,457	-2	1.00	-169	0.88			20.8%
Thru September (ECP49 & 50)					56,635	55,615	57,387	-1020	0.98	-1772	0.97	28,836	7,874	27.3%
<b>FY06 subtotal=</b>					<b>18,073</b>	<b>17,301</b>	<b>19,073</b>	<b>-772</b>	<b>0.96</b>	<b>-1772</b>	<b>0.91</b>			<b>21.2%</b>
<i>PARS for OCT</i>					951	1,855	1,323	904	1.95	532	1.40			
Thru October (ECP 52)					57,586	57,470	58,710	-116	1.00	-1240	0.98	28,304	6,627	23.4%
<i>PARS for NOV</i>					1,499	1,161	1,559	-338	0.77	-398	0.74			19.0%
Thru November (ECP 52)					59,085	58,631	60,269	-454	0.99	-1638	0.97	27,143	6,627	24.4%
<i>PARS for DEC</i>					1,039	925	1,427	-114	0.89	-502	0.65			18.4%
Thru December (ECP 52)					60,124	59,556	61,696	-568	0.99	-2140	0.97	26,218	6,627	25.3%
<i>PARS for JAN</i>					517	1,363	1,185	846	2.64	178	1.15			17.1%
Thru January (ECP 53)					60,641	60,919	62,881	278	1.00	-1962	0.97	25,374	6,033	23.8%
<i>PARS for FEB</i>					1,757	1,098	1,337	-659	0.62	-240	0.82			16.0%
Thru February (ECP 53)					62,398	62,017	64,218	-381	0.99	-2201	0.97	24,276	6,033	24.9%
														15.8%

**TOTAL PROJECT**  
**Cumulative Cost Performance Trend**



**INCREMENTAL** Cost Performance Trend  
**TOTAL PROJECT**  
(excluding cost variance drawdown in ECP-49, 50 and 52)



**INCREMENTAL** Cost Performance Trend  
for **WINDING OPS (jobs 1451/1459)**  
(excluding cost variance drawdown in ECP-49, 50 and 52)

