

PPPL COST PERFORMANCE REPORT WORKBREAKDOWN STRUCTURE

NCSX

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

5/17/05

APRIL FY05

				CUMULATIVE TO DATE (from 4/1/03) (k)					ECP30		EAC		Variance Explanation			
				Budgeted Cost			VARIANCES			Budget	ETC	(acwp + etc)	UNDER			
				BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI	Thru FY05	Thru FY05	Thru FY05	(OVER)	Schedule	Cost
1 - Stellarator Core Systems				22,565	21,790	22,480	-775	.97	-690	.97	29,403	8,096	30,576	(1,173)		
12 Vacuum Vessel Systems				4,880	4,456	4,475	-424	.91	-19	1.00	7,302	2,854	7,329	(27)		
1201 - Vacuum Vessel Prelim Dsn				424	424	424	0	1.00	0	1.00	424		424			
1202 - Vacuum Vessel R&D				1,791	1,791	1,771	0	1.00	21	1.01	1,791		1,771	21		
1203 - Vacuum Vessel Final Dsn				880	815	840	-65	.93	-25	.97	944	125	965	(22)	Final design tasks; Heater tape dsn, mag diag interface dwgs, thermal insulation.	
1204-VV Sys Procurements (non VVS/											257	273	273	(16)		
1206 - VV Field Weld Joint R&D				11	11	14	0	.99	-3	.80	19	1	15	4		
1250 - Vacuum Vessel Fabrication				1,774	1,414	1,426	-360	.80	-12	.99	3,867	2,455	3,881	(14)	Behind on buying materials and on the dies & gauges.	
13 Conventional Coils				884	802	849	-82	.91	-47	.94	1,677	1,080	1,929	(251)		
1301 - TF Design				837	748	788	-89	.89	-39	.95	837	114	902	(64)	FDR (originally scheduled for May 2nd) slipped to May 10th for the conductor and June 2nd for the comprehensive TF.	Underestimated Rushinski by factor of 3.
1302 - PF and CS Design											-		-			
1350 - TF Coil Fabr Prep				46	54	61	7	1.16	-7	.88	381	328	389	(8)		
1351 - TF Coil Fabrication											459	638	638	(179)		
1352 - PF Coil Procurement											-		-			
1353 - CS Structure Procurement											-		-			
1354 - Trim Coil Procurement											-		-			
1355 - WBS 13 I&C Proc & Coil Assy											-		-			
14 Modular Coils				14,444	14,227	14,761	-217	.98	-535	.96	17,135	3,221	17,982	(847)		
1401 - Mod Coil Prel.Dsn				303	303	304	0	1.00	-1	1.00	303		304	(1)		
1402 - Mod.Coil Analyses				239	239	239	0	1.00		1.00	239		239	(0)		
1403 - Modular Coil Final Design				2,701	2,555	2,597	-145	.95	-41	.98	3,141	557	3,154	(12)	Type C winding analysis and testing (-81). Coil to coil interface design details (-41) behind but not juggular to the FDR's. Comprehensive FDR slipped from May 31st to June 29th. Joule milestone June 30th.	
1404-MCWF R&D & 1st Prod Casting				2,534	2,534	2,554	0	1.00	-20	.99	2,534		2,554	(20)		
1405-Mod Coil Winding R&D Prep				168	168	168		1.00	0	1.00	168		168	0		
1406 - Mod. Coil Winding				2,214	2,214	2,245	0	1.00	-31	.99	2,214		2,245	(31)		
1410 MC Twisted Racetrack Fabr				699	685	755	-15	.98	-71	.91	799	127	882	(83)	TRC VPI delayed from end April to May 23rd.	Unplanned overtime
1407 -Mod Coil Winding Facility				2,523	2,523	2,546	0	1.00	-23	.99	2,523		2,546	(23)		
1412 - Complete Winding Facilities				304	309	420	4	1.01	-112	.73	310	2	422	(112)		Fabrication of Type B casting supports (6) sets taking longer than estimated. Need to complete and close job after Winding Facility ACC Review (May12 ?).

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Budgeted Cost				VARIANCES				Budget	ETC	(acwp + etc)	UNDER		
BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI	Thru FY05	Thru FY05	Thru FY05	(OVER)		Schedule	Cost
1408-Mod Coil Winding Supplies	260	304	335	44	1.17	-31	.91	596	379	714	(119)		Tom Meighan support (CC orders ?) not estimated.
1409 - Mod. Coil Test Stand	438	427	612	-11	.97	-185	.70	488	61	673	(185)	Ready for TRC testing by June 3rd. Just in time, zero free float!	Gettelfinger engr oversight underestimated by factor of 5. 2 mm of design support not estimated.
1411-MCWF Fabrication S005242	2,033	1,943	1,966	-90	.96	-23	.99	3,420	1,737	3,703	(283)	Pattern B 17% complete. Plan =71%. First delivery still planned for June 24th	
1413 - Mod Coil Fracture Analysis	23	23	19	0	1.00	4	1.24	23	-	19	4		
1451 - Mod Coil Winding	6		1	-6		-1		377	358	359	18		
15 Structures	35	35	34	0	1.00	1	1.03	35	-	34	1		
1501 - Structures Design	35	35	34	0	1.00	1	1.03	35		34	1		
1550 - Structures Procurement								-		-			
16 16 - Coil Services								-		-			
17 Cryostat and Base	190	189	247	-1	.99	-58	.76	241	46	293	(53)		
1701-Cryost&Base Sprt Strct Dsn	190	189	247	-1	.99	-58	.76	241	46	293	(53)		Designer support underestimated by factor of 2. 1 1/2 MM of analysis (Dahlgren) req'd but not estimated.
1751 - Cryostat Procurement								-		-			
1752 - Base Support Structure Procure								-		-			
18 Field Period Assembly	915	864	877	-51	.94	-13	.98	1,512	611	1,488	24		
1801-Field Period Assly	61	61	61	0	1.00	0	.99	61		61	(0)		
1802 - FP Assy Oversight&Support	248	248	278	0	1.00	-31	.89	311	63	341	(31)		HP charging greater than the 75% budgeted plus OT to support the TRC fabrication.
1803- FP Assy Toolg/Constructability	284	233	207	-51	.82	26	1.13	758	500	707	51	VV suprt fixture originally planned for mid-May. No forecast. Half period assy fix PDR planned for end may. Both behind on structural/seismic analysis and metrology layouts.	
1804-FP Assy Measurement	322	322	330	0	1.00	-8	.97	382	48	378	4		
1808 - TF/Mod Coil Sub-Assembly								-		-			
1810 - Field Period Assembly								-		-			
19 1901 - Stellarator Core Mngtt&Int	1,218	1,218	1,237		1.00	-19	.98	1,502	284	1,521	(19)		
2 - Plasma Heating,Fueling & Vac	348	348	347	0	1.00	1	1.00	348	-	347	1		
21 - Fueling Systems								-		-			
22 - Torus Vacuum Pumping Systems								-		-			
2001-VPS Gas& Cond Sys Oversight	64	64	63	0	1.00	1	1.01	64		63	1		

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2501 - Neutral Beam Refurbishment	284	284	284	0	1.00	0	1.00	284	284	0				
3 - Diagnostics	303	289	297	-14	.96	-8	.97	493	194	491	2			
# 3101 Magnetic Diagnostics	44	31	42	-14	.70	-12	.73	206	165	207	(1)	VV saddle loop prototyping and design. PDR TBD. Mod coil cowound loop design. FDR TBD.		
# 36 - Edge and Divertor Diagnosti								-	-					
38 38 - Electron Beam (EB) Mapping								-	-					
39 3901 - Diagnostics sys Integratio	258	258	255	0	1.00	3	1.01	287	29	284	3			
4 - Electrical Power Systems	411	351	346	-60	.85	5	1.02	614	260	606	9			
41 4101 - AC Power	81	81	81	0	1.00	1	1.01	81		81	1			
43 4301 - DC Systems	123	109	101	-15	.88	7	1.07	233	122	223	9			
44 4401 - Control & Protection	1	1	24	0	1.00	-23	.04	1		24	(23)			
45 4501 - Power Sys Dsn & Integr	204	159	138	-45	.78	20	1.15	298	138	276	22	Power systems design slipped by one month. CDR forecast for May 30th and the PDR by June 30th.		
46 4601 - FCPC Bldg Mods	1	1	1	0	1.02		1.00	1		1	(0)			
5 - Central I&C Systems	35	35	33	0	1.00	2	1.06	40	5	38	2			
51 51 - TCP/IP Infrastructure System								-		-				
52 52 - Central Instrumentation & C								-		-				
53 53 - Data Acquisition & Fac Com								-		-				
54 54 - Facility Timing & Synchroniz								-		-				
55 55 - Real Time Plasma & Power S								-		-				
56 56 - Central Safety Interlock Syst								-		-				
58 5801 -Central I&C Integr	35	35	33	0	1.00	2	1.06	40	5	38	2			
6 - Facility Systems	24	24	24		1.00	0	1.01	24	-	24	0			
61 61 - Water Systems														
6163 - Facility Systems Support FY04	15	15	15		1.00	0	1.01	15		15	0			
# 62 - Cryogenic Systems								-		-				
63 63 - Utility Systems								-		-				
# 6501 - Facility Systems Integratic	9	9	9		1.00	0	1.00	9		9				
7 - Test Cell Prep & Machine Assy	548	546	546	-2	1.00	0	1.00	725	228	774	(49)			
# 7101 - Shield Wall Modif	32	32	32	0	1.00		1.00	32		32	(0)			
72 7201 - Control Room Walls&Floo	35			-35				48	48	48	(0)	On hold awaiting manpower. Not critical		
73 7301 - Platform Design &		26		26		26		70	70	70	(0)	Work on nut plates started ahead of plan.		
74 7401 - TC Prep & Mach Assy Plar	482	488	514	6	1.01	-26	.95	575	110	624	(49)			
75 Machine Assembly								-	-	-				
7501 - Construction Support Crew								-		-				

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BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI		Thru FY05	Thru FY05	Thru FY05	(OVER)	
												Schedule
												Cost
7502 - Test Cell Facility Preparations								-		-		
7503 - Machine Assembly								-		-		
76 7601 - Tooling Design & Fabricat								-		-		
8 - Project Oversight & Support	5,353	5,352	5,342	-1	1.00	10	1.00	6,348	1,009	6,351	(3)	
81 Project Management and Control	2,444	2,442	2,447	-2	1.00	-5	1.00	2,934	492	2,939	(5)	
8101 - Project Management & Control	1,671	1,669	1,671	-2	1.00	-3	1.00	1,969	300	1,971	(3)	
8102 - NCSX MIE Management ORNL	201	201	202	0	1.00	-1	1.00	242	41	243	(1)	
8998 - Allocations	573	573	575	0	1.00	-2	1.00	724	151	726	(2)	
82 Project Engineering	2,439	2,439	2,424	0	1.00	15	1.01	2,943	517	2,941	2	
8202 - Engr Mgmt & Sys Eng Support	1,367	1,367	1,349	0	1.00	18	1.01	1,634	267	1,616	18	
8203 - Design Integration	657	657	651	0	1.00	6	1.01	722	66	717	5	
8204 - Systems Analysis	380	380	385	0	1.00	-5	.99	490	110	495	(5)	
8205 - Dimensional Control Coord.	36	36	40	0	1.00	-4	.91	97	74	114	(17)	
84 Project Physics	470	470	470	0	1.00	0	1.00	470	-	470	(0)	
8401 - Project Physcis	324	324	324	0	1.00	1	1.00	324	-	324	1	
8402 - Project Physics MIE ORNL	146	146	146	0	1.00	-1	1.00	146	-	146	(1)	
85 - Integrated Systems Testing								-	-	-		
Subtotal	29,588	28,736	29,416	-852	.97	-680	.98	37,996	9,792	39,208	(1,212)	
Contingency/Management Reserve								3,259				
TOTAL PROJECT								41,255	9,792	39,208	2,047	
Thru FY2004	20,640	19,652	19,744	-988	0.95	-92	1.00					
Thru NOVEMBER	21,812	21,906	22,158	94	1.00	-252	0.99	FORECAST PROJECT UNDRERUN FY05				
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					