

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	EAC	Variance Explanation	
	Budgeted Cost			VARIANCES				Schedule				Cost	
	BCWS	BCWP	ACWP	Sch Var	SPI	Cst Var	CPI						
1 - Stellarator Core Systems	16,168	16,257	16,419	89	1.01	-162	.99	30,008	50,655	155			
12 Vacuum Vessel Systems	2,934	3,217	3,257	283	1.10	-40	.99	6,939	8,737				
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		Heating/cooling, I&C, and vessel supports final design		
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		A decision on the full size sample is slipping the procurement and ultimate weld trials. Impact on VVSA procurement TBD. The PMB schedule reflects the contract payment schedule plus 2 months. While currently Major Tool is ahead of this plan they are projecting a 3 week slip in their delivery schedule		
1250 - Vacuum Vessel Fabrication	67	388	356	321	5.79	32	1.09	3,739	5,045				
13 Conventional Coils	529	481	519	-48	.91	-38	.93	1,501	4,441	-			
1301 - TF Design	529	481	519	-48	.91	-38	.93	738	738		PDR slip from Dec 15 to late January due to CTD mat'l analysis and impact on current design	Incorrect time charge from Chang Jun \$22k (should be job 8204) Also \$5k for Myatt for analysis.	
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				
14 Modular Coils	10,789	10,630	10,919	-160	.99	-290	.97	18,020	26,200	155			
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		Winding pack analysis and final design details for the type C production coil. FRD still forecast for Feb 14th.		
1404-MCWF R&D & 1st Prod Casting	2,478	2,455	2,448	-23	.99	6	1.00	2,513	2,513	155	Lawton completion of mold assy 1 week late. Pour still planned before Christmas.	EIO's EAC \$155k above budgeted amount against cost plus contract. Note lats month's positive cost variance of +\$126k corrected this month with the receipt of EIO's earned value report.	
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			Negative CV is historical and reflects underestimate of scope of testing (ie fatigue test, dogbone tests,racetrack fatigue tests). Slight improvement in November.	
1410 MC Twisted Racetrack Fabr	57	55	100	-2	.97	-44	.56	423	423		2 week slip in finishing the winding trials. Fabrication of the TRC chill plates and tubing not yet started.	Trial winding and straight tee specimen requiring more tech labor than planned.	
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			Completion of the winding clamps, and casting supports underestimated.	
1408-Mod Coil Winding Supplies	32	32	56	0	1.01	-23	.58	766	1,722			Pre-existing cost variance from FY04. FY05 work on track. Copper conductor ordered with first shipment in December.	
1409 - Mod. Coil Test Stand	416	378	370	-38	.91	8	1.02	486	486		Installation of the cryo line still no progress during Nov.(Labor issue). Also, Installation of the closed loop LN2 sys not started as planned.		
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				
15 Structures	54	54	28	0	1.00	25	1.90	224	1,381	-			
1501 - Structures Design	54	54	28	0	1.00	25	1.90	224	224				
1550 - Structures Procurement									1,156				
16 - Coil Services									1,036				
17 Cryostat and Base	186	164	126	-22	.88	39	1.31	305	1,321	-			
1701-Cryostat&Base Sprt Strct Dsn	186	164	126	-22	.88	39	1.31	305	481		No progress made in Nov. toward on the prelim design. The PDR is forecast to slip from Dec to at least January.		
1751 - Cryostat Procurement									509				
1752 - Base Support Structure Procurement									330				
18 Field Period Assembly	613	669	555	56	1.09	114	1.20	1,485	5,118	-			
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		Design of the VV support fixture not started as planned. Re-scheduled to start in January. No schedule impact.		
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				
19 1901 - Stellarator Core Mnatt&Intear	1,063	1,043	1,015	-20	.98	28	1.03	1,534	2,421				

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			Budgeted Cost		ACWP	VARIANCES								
			BCWS	BCWP		Sch Var	SPI	Cst Var	CPI				Schedule	Cost
2 - Plasma Heating,Fueling & Vac Sys			369	369	347	0	1.00	22	1.06	369	780	-		
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			
3 - Diagnostics			245	245	233		1.00	12	1.05	506	1,117	-		
# 3101 Magnetic Diagnostics										205	414			
# 36 - Edge and Divertor Diagnostics											43			
38 38 - Electron Beam (EB) Mapping											291			
39 3901 - Diagnostics sys Integration			245	245	233		1.00	12	1.05	301	369			
4 - Electrical Power Systems			345	357	286	12	1.03	70	1.25	709	3,216	-		
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			
5 - Central I&C Systems			26	26	32	0	1.01	-6	.81	37	1,917	-		
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			
6 - Facility Systems			42	42	24	0	1.00	17	1.72	42	825	-		
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										9	103			
# 6501 - Facility Systems Integration			9	9	9		1.00	0	1.00		9			
7 - Test Cell Prep & Machine Assy			429	422	374	-7	.98	48	1.13	726	4,211	-		
# 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		Platform PDR re-schedule to February. No impact. Scope being reduced.	
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			
8 - Project Oversight & Support			4,189	4,188	4,442	0	1.00	-253	.94	6,008	10,579	-		
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		\$146k of variance in FY04 due to higher than budgetd project controls and engr support. \$12k variance FY to date.	
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		Allocations underbudgeted in FY05 by 10% plus costing at higher than linear rate. Forecast year end variance of \$26k	
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		Project closed for balacne of MIE project. Variances for work in FY04.	
8402 - Project Physics MIE ORNL			102	102	146	0	1.00	-44	.70	102	102			
85 - Integrated Systems Testing											1,221			
Subtotal			21,812	21,906	22,158	94	1.00	-251	.99	38,404	73,300	155		
Contingency										1,200	13,053			
TOTAL PROJECT										39,604	86,353			