

NCSX Work Breakdown Structure (WBS)

NCSX WBS			
1	Stellarator Core Systems		
11	<i>In-Vessel Components</i>		No MIE Scope
12	Vacuum Vessel Systems		
	1201	Vacuum Vessel Prelim Dsn	Complete
	1202	Vacuum Vessel R&D	Complete
	1203	Vacuum Vessel Final Dsn	Complete
	1204	VV Sys Procurements (non VVSA)	
	1206	VV Field Weld Joint R&D	Complete
	1250	Vac. Vessel Sub-Assys. (VVSA) Fab.	Complete
13	Conventional Coils		
131	TF Coils		
	1301	TF Design	Complete
	1350	TF Coil Fab Prep	Complete
	1351	TF Coil Fabr Supplies	Complete
	1361	TF Fabrication	
132	PF Coils		
	1302	PF Design	
	1352	PF Coil Procurement	
133	External Trim Coils		
	1354	Trim Coil Design &Procurement	
134	Local I&C		
	1355	Conv. Coils I&C Proc & Coil Assy	
135	Central Solenoid Support Structure NEW		
	1303	Central Solenoid Support Dsn	Complete
	1353	CS Structure Procurement	
14	Modular Coils		
141	Modular Coil Winding Forms		
	1413	MCWF Fracture Analysis	Complete
	1404	MCWF R&D & 1st Prod Casting	Complete
	1411	MCWF Fabrication	Comp. 6/30/07
142	Modular Coil Fabrication		
	1405	Mod Coil Winding R&D Prep	Complete
	1415	Dim Cntrl Testing	Complete
	1406	Mod. Coil Winding R&D	Complete
	1408	Mod Coil Winding Supplies	
	1410	MC Twisted Racetrack Fabr	Complete
	1451	Mod Coil Winding	
	1459	Mod Coil Fabr. Punch List	
	1409	Coil Test Stand	Complete
	1414	Coil Testing-Gettelfinger	Complete
143	Modular Coil Design		
	1401	Mod Coil Prel.Dsn	Complete
	1402	Mod.Coil Analyses	Complete
	1403	Modular Coil Final Design	Complete
	1416	Mod Coil Type A&B Final Dsn	Comp. 6/30/07
	1421	Mod Coil Interface Design	Comp. 6/30/07
144	Modular Coil Fabrication Facility		
	1407	Mod Coil Winding Facility	Complete
	1419	Winding Fac. Mods	Complete
	1412	Complete Winding Facilities	Complete
	1460	3rd Winding Fixture	Complete
145	Modular Coil Interfaces		
	1431	Mod. Coil Interface Hardware Procurement	
	1429	Mod. Coil Interface R&D	Comp. 6/30/07
15	Coil Support Structures		
	1501	Coil Structures Design	
	1550	Coil Structures Procurement	
16	Coil Services		
	1601	Coil Services Design & Procurement	
161	LN2 Distribution System		
162	Coil Electrical Leads		
163	Coil Protection Requirements CANCELLED		
17	Cryostat and Base Support Structure		
171	Cryostat		
	1701	Cryostat Design	
	1751	Cryostat Procurement	
172	Base Support Structure		
	1752	Base Support Structure Procurement	
	1702	Base Support Structure Design	
18	Field Period Assembly		
181	Planning and Design		
	1801	FPA Preliminary Design	Complete

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	1806	FPA specs & dwgs	
185	Field Period Assembly Operations		
	1802	FPA Oversight & Support	
	1810	FPA Ops @TFTR TC	
	18xx	FPAOps @NCSX TC	
	1804	Metrology Engineering	Complete
186	Tooling Design and Fabrication		
	1803	FPA Tooling & Constructability	
	1805	FPA Hardware & Fixture Procurements	
19	Stellarator Core Management and Integration		
	1901	Stellarator Core Management and Integration	
191	Stellarator Core Management		
192	Stellarator Core Design Integration		
2	Auxiliary Systems		
21	Fueling Systems		
211	Gas Fueling Systems		
	2101	Fueling Systems	
212	Pellet Injection Fueling Systems		No MIE Scope
22	Torus Vacuum Pumping System		
	2201	Vacuum Pumping Systems	
23	<i>Wall Conditioning Systems</i>		No MIE Scope
231	Glow Discharge Cleaning System		No MIE Scope
232	Borazation System		No MIE Scope
233	Lithiumization System		No MIE Scope
24	<i>ICH System</i>		No MIE Scope
25	Neutral Beam Injection System		Complete
	2501	Neutral Beam Refurbishment	Complete
26	<i>ECH System</i>		No MIE Scope
27	Auxiliary Systems Integration		
	2001	Auxiliary Systems Oversight	Complete
3	Diagnostics		
31	Magnetic Diagnostics		
	3101	Magnetic Diagnostics	
32	<i>Fast Particle Diagnostics</i>		No MIE Scope
33	<i>Impurity Diagnostics</i>		No MIE Scope
34	<i>MHD Diagnostics</i>		No MIE Scope
35	<i>Profile Diagnostics</i>		No MIE Scope
36	Edge and Divertor Diagnostics		
	3601	Edge and Divertor Diagnostics	
37	<i>Turbulence Diagnostics</i>		No MIE Scope
38	Electron Beam (EB) Mapping		
	3801	Electron Beam Mapping	
39	Diagnostics Integration		
	3901	Diagnostics sys Integration	
4	Electrical Power Systems		
41	AC Power		
	4101	AC Power	
411	Auxiliary AC Power Systems		
412	Experimental AC Power Systems		
43	DC Systems		
	4301	DC Systems	
431	C-Site DC Systems		
44	Control and Protection Systems		
	4401	Control & Protection	
441	Electrical Interlock Systems		
442	Kirk Key Interlocks		
443	Real Time Control Systems		
444	Instrumentation Systems		
445	Coil Protection Systems		
45	Power System Design and Integration		
	4501	Power Sys Dsn & Integr	
451	System Design and Interfaces		
452	Electrical Systems Support		
453	System Testing (PTPs)		
5	Central Facility I&C Systems		
51	TCP/IP Infrastructure Systems		
	5101	TCP/IP Infrastructure Systems	
52	Central Instrumentation and Control Systems		
	5201	I&C Systems	

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53	Data Acquisition & Facility Computing Systems		
	5301	Data Acquisition	
54	Facility Timing and Synchronization Systems		
	5401	Facility Timing &	
55	Real Time Plasma and Power Supply Control Systems		
	5501	Real Time Control System	
56	Central Safety Interlock Systems		
	5601	Central Safety Interlock Systems	
57	Control Room Facility		
58	Central I&C Integration		
	5801	Central I&C Integr	
6	Facility Systems		
61	Water Cooling Systems		
611	C-Site Cooling Systems		
	6101	Water Systems	
612	Neutral Beam Water Cooling System		No MIE Scope
613	Vacuum Pumping Water Cooling System		No MIE Scope
614	Bakeout Water System		No MIE Scope
615	Diagnostic Water Cooling System		No MIE Scope
62	Cryogenic Systems		
	6201	Cryogenic Systems	
	6200	Cryostat Cooling System Design	
621	LN2-LHe Supply Systems		No MIE Scope
622	LN2 Coil Cooling Supply System		No MIE Scope
623	GN2 Cryostat Cooling System		No MIE Scope
63	Utility Systems		
	6301	Utility Systems	
64	Vacuum Vessel Heating and Cooling		No MIE Scope
65	Facility Systems Integration		
	6163	Facility Systems Support FY04	Complete
	6501	Facility Systems Integration	Complete
7	Test Cell Preparation and Machine Assembly		
71	Shield Wall Reconfiguration		
	7101	Shield Wall Modifications	Complete
72	Control Room Refurbishment		No MIE Scope
73	Platform Design and Fabrication		
	7301	Platform Design & Fabrication	
74	Machine Assembly Planning and Oversight		
	7401	TC Prep & Mach Assy Planning	
75	Test Cell and Basement Assembly Operations		
	7503	Machine Assembly Operations	
	7501	Construction Support Crew	
76	Tooling Design and Fabrication		
	7601	Tooling Design & Fabrication	
77	Measurement Systems		No MIE Scope
8	Project Management & Integration		
81	Project Management and Control		
	8101	Project Management & Control	
	8102	Project Management ORNL	
82	Project Engineering		
821	Engineering Management		
	8202	Eng. Mgt. & System Eng. Support	
	8206	FY07 Re-baseline Tasks	Comp. 6/30/07
822	System Engineering		
823	Design Integration		
	8203	Design Integration	
824	System Analysis and Technical Assurance		
	8204	Systems Analysis	
825	Dimensional Control Coordination		
	8205	Dimensional Control Coordination	
826	Plant Design		
	8215	Plant Design	
83	Environmental and Safety/QA Management		No MIE Scope
84	Project Physics		
	8401	Project Physics	Complete
	8402	Project Physics ORNL	Complete
85	Integrated Systems Testing		
	8501	Integrated Systems Testing	
89	PPPL Allocations		
	8998	PPPL Allocations	