

NCSX Project Work Breakdown Structure (WBS) Dictionary
Project Management and Integration (WBS 8)
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Prepared by:	
R. Simmons	
Reviewed by:	
WBS 81 (Job 8101) & WBS 89 (PPPL Project Management & PPPL Direct Allocations)	R. Strykowski (Job Manager)
WBS 81 (Job 8102) ORNL Project Management	J. Lyon (Job Manager)
WBS 82 (Project Engineering)	W. Reiersen (WBS Manager)
WBS 83 (ES&H)	J. Levine (Job Manager)
WBS 83 (Quality Assurance)	J. Malsbury (Job Manager)
WBS 84 (Project Physics)	M. Zarnstorff (WBS Manager)
WBS 85 (Integrated Systems Testing)	C. Gentile (WBS Manager)
Approved by:	
H. Neilson	

**Work Breakdown Structure (WBS) Dictionary
Project Oversight and Support (WBS 8)**

Record of Revisions

Revision	Date	Author	Description
0	6/25/2002	Simmons	Initial issue
1	12/15/2003	Simmons	General revision.
2	4/18/2006	Gentile	Update of WBS 85 description.
3	7/2/2007	Simmons	Updated WBS to Reflect Scope for 2007 Rebaseline.

Work Breakdown Structure (WBS) Dictionary Project Oversight and Support (WBS 8)

WBS Element: 8		WBS Level: 2
WBS Title:	Project Management and Integration	
Description:	<p>This summary-level WBS element consists of all the activities necessary to manage the NCSX Project and carry out system-level engineering tasks such as project management, project control, systems engineering, design integration, technical assurance, and project physics. It also includes planning and performing the final integrated systems testing leading to first plasma.</p> <p>MIE Project Scope: Defined in lower-level WBS elements.</p>	
WBS Element: 81		WBS Level: 3
WBS Title:	Project Management	
Description:	<p>This WBS element includes:</p> <ul style="list-style-type: none"> • Project Management: Efforts of the Laboratory Project Manager, Deputy Project Managers, Construction Manager, and administrative staff. Responsibilities are defined in the Project Execution Plan. • Project Control. Efforts of the Project Control staff. Responsibilities are defined in the Project Execution Plan. 	
WBS Element: 82		WBS Level: 3
WBS Title:	Project Engineering	
Description:	<p>This WBS element includes engineering management, systems engineering, design integration, system analysis, technical assurance, dimensional control coordination, and plant design.</p>	
WBS Element: 821		WBS Level: 3
WBS Title:	Engineering Management	
Description:	<p>The Engineering Manager is responsible for the successful execution of the engineering design, fabrication, and assembly efforts. Specific responsibilities include:</p> <ul style="list-style-type: none"> • Risk management • Project planning, including implementing the PPPL Work Planning (WP) program • Safety, including implementing the PPPL Integrated Safety Management (ISM) program <p>Responsible Line Managers (RLMs) are responsible for managing the on-site fabrication and assembly work and the design, fabrication, and assembly of ancillary, facility, and electrical systems. Line management of the ORNL scope is part of WBS 19.</p>	

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WBS Element: 822		WBS Level: 3
WBS Title:	System Engineering	
Description:	Responsibilities include: <ul style="list-style-type: none"> • Requirements management • Design verification, including a program for systematic design reviews • Configuration management and change control, including processing of Requests for Deviations (RFDs), Engineering Change Proposals (ECPs), and Engineering Change Notices (ECNs), and interface control • Document control, including maintaining a Web-based system for finding and retrieving project data and utilizing the PPPL Ops Center • Training project personnel in project plans, procedures, and practices. 	
WBS Element: 823		WBS Level: 3
WBS Title:	Design Integration	
Description:	Responsibilities include: <ul style="list-style-type: none"> • Configuration development and integration support for all design and construction activities. Participating in design reviews. • Administering the CAD database of project models and drawings. Reviewing and promoting CAD models and drawings. Establishing Intranet procedures and privileges. • Providing support to the metrology and dimensional control efforts by analyzing metrology data in conjunction with CAD models of the parts and assemblies. 	
WBS Element: 824		WBS Level: 3
WBS Title:	System Analysis and Technical Assurance	
Description:	Responsibilities include: <ul style="list-style-type: none"> • Establishing structural and cryogenic design criteria. Completed • Establishing dimensional accuracy requirements for coil systems based on field error considerations. Completed • Analyzing field errors and managing field error budgets for as-designed conditions, out-of-tolerance conditions, eddy currents, and magnetic materials. Includes dispositioning nonconformance reports (NCRs). • Providing analysis support to the metrology and dimensional control efforts for troubleshooting problems as well as production activities • Analyzing options for optimally aligning modular coils based on physical and magnetic measurements • Performing global analyses which are outside the scope of individual subsystems. Analyses include electromagnetic analyses to determine coil inductances, fields, forces; global structural modeling to determine overall structural behavior, mechanical interface loads, and operating limits. (Global seismic analyses will be performed as part of the base support structure design in WBS 15.) • Providing independent assessments of the design adequacy and risks for critical systems and design features. Facilitate resolution of critical issues. 	

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WBS Element: 825		WBS Level: 3
WBS Title:	Dimensional Control Coordination	
Description:	Support design and construction activities in the realization of dimensional accuracy requirements by developing strategies and procedures for dimensional control and supporting their implementation.	
WBS Element: 826		WBS Level: 3
WBS Title:	Plant Design	
Description:	Allocate space within the NCSX Facility which includes the Test Cell and adjacent areas. Develop models and drawings to define the routing and location of equipment in the Test Cell.	

WBS Element: 83		WBS Level: 3
WBS Title:	Environmental and Safety/QA Management	
Description:	This WBS element includes all professional ES&H and Quality Assurance/Quality Control support of the design and construction activities. These activities are indirectly funded. No direct costs are charged.	

WBS Element: 84		WBS Level: 3
WBS Title:	Project Physics	
Description:	This WBS element includes the project physics requirements definition for the NCSX fabrication project. Completed.	

WBS Element: 85		WBS Level: 3
WBS Title:	Pre-Operational and Integrated Systems Testing	
Description:	<p>This WBS (85) covers the planning, document preparation, and execution of the NCSX integrated system testing and startup activities, culminating in First Plasma. Program is documented in the NCSX CD-4 Start-Up Plan.</p> <p>Costs for the development and completion of the sub-system preoperational tests procedures (PTP's) are the responsibility of the individual (sub-system) WBS managers and are detailed in the specific WBS work elements. In addition the development and performance of the sub-system PTP's are linked to the the NCSX CD-4 Start-Up Plan.</p>	

WBS Element: 89		WBS Level: 3
WBS Title:	PPPL Allocations	
Description:	PPPL collects direct allocation costs charged to the NCSX Project and Program. The direct allocation charges are to cover the allocated charges for the Computer Division's support and maintenance of the Laboratory computer systems, desktop computer support at PPPL, diagnostic and rf development activities at PPPL and health physics sampling, data analysis and maintenance of the PPPL Environmental, Analytical, and Radiological Laboratory (PEARL). The portion of the direct allocation budget applied to the NCSX project is calculated and controlled by the PPPL budget office as a function of the research, analyst, and health physics personnel budgeted to the project.	