

**NCSX Fabrication Project
Work Breakdown Structure (WBS) Dictionary
Project Management and Integration (WBS 8)
NCSX-WBS8-01**

Revision 1

January 21, 2004

Prepared by:

R. Simmons, Systems Engineering Support Manager

Reviewed by:

R. Strykowski, WBS 81
WBS Manager

W. Reiersen, WBS 82
WBS Manager

J. Levine, WBS 83
ES&H Manager

J. Malsbury, WBS 83
QA Manager

M. Zarnstorff, WBS 84
WBS Manager

C. Gentile, WBS 85
WBS Manager

Approved by:

G.H. Neilson, Project Manager

**Work Breakdown Structure (WBS) Dictionary
Project Management and Integration (WBS 8)**

Record of Revisions

Revision	Date	Author	Description
0	9/12/2003	Simmons	Initial issue
1	1/21/2004	Simmons	Updated WBS dictionary to correct format and to reflect updated CD-2 scope.

Work Breakdown Structure (WBS) Dictionary Project Management and Integration (WBS 8)

WBS Element: 8		WBS Level: 2
WBS Title:	Project Management and Integration	
Description:	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, environment, safety, and health (ES&H), Quality Assurance and Control (QA/QC) management, and project physics. It also includes planning and performing the final integrated systems testing leading to first plasma.	

WBS Element: 81		WBS Level: 3
WBS Title:	Project Management and Control	
Description:	<p>This WBS element includes the overall project direction, oversight, and administrative support, including budgeting, cost control, scheduling, and procurement activities. These are in direct support of the NCSX fabrication project.</p> <p>In addition, PPPL collects direct allocations 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 VAX, UNIX and CADD computer systems and desktop computer support here at PPPL and the diagnostic and rf development activities at PPPL.</p>	

WBS Element: 82		WBS Level: 3
WBS Title:	Project Engineering	
Description:	This WBS element includes the engineering management, systems engineering, design integration, systems analysis, and technical assurance activities required for the design and construction of the NCSX Project.	

Work Breakdown Structure (WBS) Dictionary Project Management and Integration (WBS 8)

WBS Element: 83		WBS Level: 3
WBS Title:	Environmental and Safety/QA Management	
Description:	<p>This WBS element includes all the ES&H and Quality Assurance/Quality Control support of the design and construction process. Since these activities cut across all WBS elements, the effort is defined and collected here. It includes the following activities:</p> <ul style="list-style-type: none"> • Construction Safety; • Electrical Safety; • Radiation Safety; • NEPA & Safety Assessment Review & Coordination; • Industrial Hygiene & Safety; • Quality Assurance; and • Quality Control of the procurement and construction processes. <p>These personnel are funded under the general indirect costs pool via the G&A rate rather than by direct project funds.</p> <p>NCSX intends to use Defense Contracts Management Agency (DCMA) personnel as field QA inspectors at supplier sites. This service was formerly provided at no cost to the National Laboratories, but is now an indirect charge to the Project. Each DCMA assignment (unique company and subcontract) is defined by a letter of delegation from PPPL providing subcontract information and defining the services desired in fairly general terms. One provision is that the DCMA representative must provide trip reports describing what was accomplished and what is planned next so that PPPL stays aware of progress and is able to intervene when necessary. The formal delegation letter will also provide a maximum number of hours based on estimated visits needed and a requirement that DCMA contact PPPL for approval to continue when an established expenditure percentage of the maximum hours have been reached.</p>	

WBS Element: 84		WBS Level: 3
WBS Title:	Project Physics	
Description:	<p>This WBS element includes the project physics activities in direct support of the NCSX fabrication project. Since these activities cut across all WBS elements, the effort is defined and collected here. It includes the following activities:</p> <ul style="list-style-type: none"> • Physics requirements and interface definition; • Physics models and codes to facilitate the physics design and analyses of options; and • Physics analyses of options. 	

Work Breakdown Structure (WBS) Dictionary Project Management and Integration (WBS 8)

WBS Element: 85		WBS Level: 3
WBS Title:	Pre-Operational and Integrated Systems Testing	
Description:	<p>At the conclusion of construction the NCSX sub-systems will undergo a series of pre-operational tests (PTP's), including a comprehensive integrated systems test (ISTP) which will lead to first plasma. After achieving first plasma the device will be ready for plasma operations. This WBS (85) covers the planning, coordination, procedurization, staffing, and execution of the NCSX startup as detailed in the Test and Evaluation Plan (TEP).</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 Test and Evaluation Plan (TEP).</p>	