PROCEDURE: NCSX–PROC–001 Rev. 0		Page: 1 of 2
Title **NCSX Glossary of Acronyms and Definitions**	**Initiated by:** ? Robert Simmons 2003.02.03 13:50:15 -05'00' NCSX Systems Engineering Support Manager	**Effective Date:** **February 3, 2003**
Concurred by: ? Judith Malsbury 2003.02.06 09:15:47 -05'00' NCSX Quality Assurance	**Approved by:** ? Wayne Reiersen Digitally signed by Wayne Reiersen DN: cn=Wayne Reiersen, o=PPPL, c=US Date: 2003.02.06 11:18:58 -05'00' Reason: I am approving this document Location: PPPL Signature Not Verified NCSX Engineering Manager.	**Supersedes:** New

Applicability

This procedure is applicable to the entire NCSX Project.

Introduction

This procedure provides the NCSX glossary of Acronyms and Definitions. This procedure is intended to supplement the PPPL Procedure ENG-029, *Technical Definitions and Acronyms*, and provides a standardized listing of acronyms and definitions to be used for the NCSX Project.

Referenced Documents

NCSX-PLAN-PEP	NCSX Project Execution Plan
NCSX-PLAN-SEMP	NCSX Systems Engineering Plan
NCTX-PLAN-CMP	NCSX Configuration Management Plan
NCSX-PLAN-DMP	NCSX Data Management Plan
NCSX-PLAN-DOC	NCSX Document and Records Plan
NCSX-PLAN-ICMP	NCSX Interface Control Management Plan
PPPL-ENG-029	PPPL Procedure on Technical Definitions and Acronyms

Procedure

Responsibility		Action
Initiator (Anyone on the Project)	1.	Identifies need for change (add/delete/modify) the list of acronyms and/or definitions contained in Attachments 1 & 2 to this procedure. to the NCSX technical, cost, or schedule baselines.
	2.	Forwards suggested change to the Systems Engineering Support Manager
Systems Engineering Support Manager	3.	Discusses proposed change with the NCSX Engineering Manager

4. If proposed change approved by the NCSX Engineering Manager, initiate change to this procedure. If proposed change rejected, notify initiator of reasons for rejection.

Attachments

Attachment 1: List of NCSX Acronyms

Attachment 2: List of NCSX Definitions

PPPL PROCEDURE ENG-029, TECHNICAL DEFINITIONS AND ACRONYMS STANDARDIZES THE TERMS AND ACRONYMS IN USE AT PPPL. THE NCSX PROJECT WILL ADOPT THOSE DEFINITIONS AND ACRONYMS CONTAINED IN THE LATEST VERSION OF THIS PROCEDURE.

ACRONYMS

[AB][CD][EF][GH][IJ][KL][MN][OP][QR][ST][UV][WX][YZ]

AB

- ACC – Activity Certification Committee (PPPL internal ES&H review committee to determine NCSX readiness for operations)
- ACWP – Actual Cost of Work Performed
- AE – DOE Acquisition Executive (for NCSX, this is the Associate Director for Fusion Energy Sciences)
- AEP – Acquisition Execution Plan
- AOPE –AB Assembly Operations Project Engineer (WBS 7 Responsibility)
- ASPE – Auxiliary Systems Project Engineer (WBS 2-6 Responsibility)
- B&R – DOE Budget and Reporting Line
- BA – Budget Authority (amount authorized to commit)
- BCWP – Budgeted Cost of Work Performed (also known as Earned Value)
- BCWS – Budgeted Cost of Work Scheduled
- BO – Budget Obligation (amount authorized to spend)

CD

- CAD – Computer Aided Design
- CCB – Change Control Board
- CD – Critical Decision (DOE Acquisition-Related Milestone)
- CDR – Conceptual Design Review (DOE Review)
- CHITS – Formal design review comment forms
- CI – Configuration Item
- CM – Configuration Management
- CMP – Configuration Management Plan (NCSX-PLAN-CMP**)**
- CPR – Cost Performance Report
- CS – Compact Stellarator

- DBD – Design Basis Documentation (historical document prepared for a design review)
- DMP – Data Management Plan (NCSX-PLAN-DMP)
- DOC – Document and Records Plan (NCSX-PLAN-DOC)
- DOE – Department of Energy
- DOE-CH – Department of Energy, Chicago Operations Office
- DOE-PAO – Department of Energy, Princeton Area Office

EF

- EA – Environmental Assessment
- ECN – Engineering Change Notice (per PPPL-ENG-010)
- ECP – Engineering Change Proposal
- EIR – External Independent Review (DOE Review)
- ESAAB – DOE Energy Sciences Acquisition Advisory Board
- ETC – Estimate to Complete
- FAIT – Fabrication, Assembly, Installation, and Test Phase of the Project
- FDR – Final Design Review (Project Review)
- FED – ORNL Fusion Energy Division
- FESAC – DOE Fusion Energy Sciences Advisory Committee
- FONSI – Finding of No Significant Impact
- FTP – File Transfer Protocol
- FWP – Field Work Proposal
- FY – Fiscal Year

GH

- GRD – General Requirements Document (NCSX-ASPEC-GRD)

IJ

- ICD – Interface Control Document
- ICM – Interface Control and Management
- ICMP – Interface Control Management Plan (NCSX-PLAN-ICMP)
- IDD – Interface Description Drawing (or model)
- IPT – Integrated Project Team
- ISM – Integrated Safety Management
- ISMP – PPPL Integrated Safety Management Plan

KL

MN

- M&O – Management and Operating
- M&S – Materials and Supplies
- MIE – Major Item of Equipment (capital funded)
- MITP – Manufacturing, Inspection, and Test Plan
- MSDS – Material Safety Data Sheets
- NCSX **–** National Compact Stellarator Experiment
- NCR – Non Conformance Report
- NEPA – National Environmental Protection Act
- NSTX – PPPL National Spherical Torus Experiment

OP

- O&M – Operations and Maintenance
- OH – Ohmic Heating
- OFES – DOE Office of Fusion Energy Sciences
- OMB – Federal Government's Office of Management and Budget
- OPE – Operations Project Engineer
- ORA – Operational Readiness Assessment (DOE Review)
- ORNL – Oak Ridge National Laboratory
- PAC – NCSX Program Advisory Committee
- PARS – DOE Project Assessment and Reporting System
- P3 – Primavera Project Planner (project control scheduling software)
- PBX-M – Princeton Beta Experiment-Modified
- PCM – Project Control Manager
- PCS – PPPL Project Control System
- PCSD – PPPL Project Control System Description
- PDF – Portable Data Format (part of the Adobe Acrobat capabilities)
- PDM – Product Data Management (part of the Pro/INTRALINK data base)
- PDR – Preliminary Design Review (Project Review)
- PEP – Project Execution Plan (NCSX-PLAN-PEP)
- PF – Poloidal Field
- PFC – Plasma Facing Component

- PLT – Princeton Large Torus
- PM – Project Manager
- PoP – Proof-of-Principal experiment
- PPPL – Princeton Plasma Physics Laboratory
- Pro/E – Pro Engineer CAD Software
- PTC – Parametric Technologies Corporation, maker of the Pro/Engineer and Pro/INTRALINK software
- PVR – Physics Validation Review (DOE Review)

QR

- QAP – Quality Assurance Plan (NCSX-PLAN-QAP)
- R&D – Research and Development (known as Manufacturing Development for MIE Projects)
- RAM – Reliability, Availability, Maintainability – also Reliability, Availability, Maintainability Plan (NCSX-PLAN-RAM)
- RTP – Request to Promote (Pro/INTRALINK term)

ST

- SE – Systems Engineering
- SEML – Systems Engineering Master Logic
- SEMP – Systems Engineering Management Plan (SEMP)
- SIT – Systems Integration Team
- SOW – Statement of Work
- SPEB – Subcontractor Procurement Evaluation Board
- SRD – System Requirements Document
- SS – Scope Sheet (part of the interface definition process)
- TEC – Total Estimated Cost (measure for MIE Projects)
- TEP – Test and Evaluation Plan (NCSX-PLAN-TEP)
- TF – Toroidal Field
- TRR – Test Readiness Review (Project Review)

UV

- VE - Value Engineering

WX

- WAF – Work Authorization/Approval Form
- WBS – Work Breakdown Structure
- WP – Work Planning Form

YZ

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DEFINITIONS

[AB][CD][EF][GH][IJ][KL][MN][OP][QR][ST][UV][WX][YZ]

AB

- "Build to" Specifications - lets each fabricator or assembler know the detailed envelope and boundary condition requirements for fabrication and assembly of a configuration item. "Build-to" specifications will be prepared as input documents to the Final Design Review (FDR). May include manufacturing specifications, fabrication and assembly procedures, fabrication drawings, and any other technical data that may constrain the fabricator or assembler.

CD

- Capital Funds – category of DOE funding authorized NCSX fabrication project activities starting with Title I and ending with Project completion as measured by achievement of first plasma.
- Configuration Change Control – a process for identifying and managing proposed changes to a configuration item and its characteristics and the impact of the proposed change on the documentation describing the technical, cost, and schedule baselines. This includes evolution of the design of the configuration item over time and tracking of the status of proposed changes to the configuration item until the change is approved or rejected.
- Configuration Identification – a process for identifying configuration items and development of the appropriate configuration documentation to define the physical and functional characteristics of each configuration item.
- Configuration Item – represent the lowest level of control under configuration control and may be a single physical or functional item or collection of items that will satisfy a final end product or deliverable.
- Configuration Management (CM) – an integrated program that ensures that the configuration is identified and properly documented and that changes to the configuration are controlled during this life cycle
- Configuration Status Accounting – a process for tracking the status of the implementation of approved changes in detail down to each impacted document.

- Configuration Verification – a process for verifying that the latest approved documents are used to fabricate/test configuration items and that the as-built physical and functional configuration is accurately reflected in the supporting documentation. It is anticipated that most of this effort will occur under the existing PPPL QA program.
- Cost Baseline – the detailed cost estimates to accomplish the activities comprising the technical baseline. The cost baseline resides in the Primavera Project Planner (P3) database.
- Cost Variance – any difference between the estimated cost of and the actual cost of an activity at any given point; in terms of earned value systems, this is BCWP less ACWP.
- Critical Decision Milestones – DOE project milestones
  - CD-0 – Mission Need Verification
  - CD-1 – Authorization for Project Start (Preliminary Design) and Approval of Preliminary Baseline Cost and Schedule Range
  - CD-2 – Approval of Cost and Schedule Performance Baseline
  - CD-3 – Approval to Commence Fabrication Activities, including procurements
  - CD-4 – Approval to Commence Operations
- Design Basis Documents – DBDs are historical documents that will **NOT** be under configuration control. DBDs will be prepared/updated for each major design review (e.g., PDR, FDR) and represent the comprehensive design basis that describes (but not define) the design of each subsystem and how the design satisfies the requirements specified in the requirements documents.
- "Design to" Specifications – lets each WBS Manager know the requirements they have to design to and what are the envelope and boundary conditions for the final design. "Design-to" specifications will be prepared as input documents to the Preliminary Design Review (PDR). May include system requirement documents/specifications, ICDs, design drawings and models, and any other technical data that may constrain the designer.

EF

- Earned Value – overall a method of measuring project performance that compares the amount of work planned with what was actually accomplished to determine if cost and schedule is as planned.
- "Expedited: ECP – an "expedited" ECP might be appropriate when a pending critical procurement needs to reflect the proposed change or if a field activities may be delayed by the normal ECP process involving full reviews and the CCB. The NCSX Engineering Manager, with approval of the NCSX Project Manager, will be the sole reviewer and approver. However, any "expedited" ECPs will be reviewed "after-the-fact" by the full CCB to ensure that major errors and/or omissions were not made.

- Functional interfaces – functional interfaces define the performance requirements and will eventually be reflected in analyses and developmental or "design to" specifications.

GH

IJ

- Integrated Project Team (IPT) – multi-disciplinary team consisting of DOE Federal Project Manager, DOE Program Manager, and senior laboratory and NCSX Project personnel to serve as a forum for discussing and evaluating high-level project decisions and progress, including technical and management challenges.
- Interfaces – define the functional, performance, and physical characteristics required to exist at a common boundary. This boundary consists of performance/physical design constraints between configuration items, systems, and subsystems. There are two types of interfaces: primary interfaces and secondary interfaces.
- Interface Control Management (ICM) – process of defining and managing interfaces on NCSX.
- Interface Control Documents (ICDs) – ICDs are written agreements that are prepared only for primary interfaces physical envelope interfaces.

KL

MN

- Major Item of Equipment (MIE) – NCSX is defined by DOE as a MIE project that will be funded by capital funds. MIE projects are measured by their performance against the Total Estimated Costs (TEC).
- Manufacturing Development – manufacturing studies, development, and prototyping in support of Title I and Title II design activities. Part of MIE project and funded by capital funds.

OP

- Operating Funds – category of DOE funding used to support pre-Title I activities and more generic programmatic activities that will proceed in parallel with the fabrication project funded by capital funds.

- Primary Interfaces – a primary interface exists between two separately deliverable items (referred to as configuration items) when the mutual bountdary is not controlled by a single developmental or "design to" specification. Primary interfaces will be documented on ICDs for physical interfaces and in the "design to" specification for functional interfaces..
- Project Completion Criteria – defined on a WBS-by-WBS basis in Annex I (NCSX Scope Definition) to the NCSX Project Execution Plan (PEP)

QR

- Research and Development – alternate design concept studies, development, and investigations to obtain scientific and engineering data in support of pre-Title I activities.

ST

- Schedule Baseline – The schedule estimates to accomplish the activities comprising the technical baseline. The schedule baseline resides in the Primavera Project Planner (P3) database.
- Secondary Interfaces – define those interfaces that lie solely within the control of a single "design to" specification, even though it might cross WBS boundaries. ICDs are not required to define secondary physical interfaces.
- Systems Engineering – a proven disciplined approach that supports management in clearly defining the mission or problem; managing system functions and requirements; identifying and managing risk; establishing bases for informed decision making; and verifying that the product and process designs produce a functional system that optimally meets the mission requirements.
- Systems Integration Team (SIT) – internal NCSX senior level management and technical team whose purpose is to ensure that all participating organizations has a forum for discussion of systems engineering matters such as requirements interpretation, potential areas of risk, system-level trade studies/analyses, coordination of processes, etc. The SIT will be responsible for risk management at the overall project or system level.
- Tailored Approach – a flexible approach authorized by DOE for most aspects of project management and acquisition processes, including program documentation, acquisition phases, and the timing, scope, and level of DOE decision reviews. In a tailored approach to program oversight and review, project criteria are applied based on the program's size, risk, and complexity. In DOE terms, NCSX is in the "Other Project" category in the range of under $100M of total capital costs.
- Technical Baseline – The physical and functional description of the components, systems, and software/firmware comprise the "configuration" of the NCSX Project. The technical baseline starts as a high-level specification and evolves to greater level of detail as the design progresses. This process is controlled in a manner in which documents describing the technical baseline

configuration are progressively placed under configuration control as the design matures. At selected points in the NCSX life cycle, the *technical* baseline is defined by:

- Requirements documents (specifications) that clearly define the performance requirements and constraints that need to be satisfied;
- Interface Control Documents (ICDs) that define the primary interfaces between WBS elements; and
- Drawings, models, and technical data that physically and functionally define the configuration.

The technical baseline documentation resides in either the Pro/INTRALINK database (drawings and models) or the Engineering Web page (all other controlled documents).

- Title I Design – also called Preliminary Design
- Title II Design – also called Final Design
- Title II Design – the design follow and support activities during the fabrication, assembly, installation, and testing (FAIT) phase of the project.
- Total Estimated Costs (TEC) – for NCSX this is the sum of all capital expenditures plus contingency to complete the authorized project work commencing with the start of Title I and ending with project completion measured by achievement of first plasma. Operating funds supporting programmatic efforts, including upgrades are **NOT** included in the TEC.

UV

- Value Engineering (VE) – the systematic application of recognized techniques by a multi0disciplinary team to identify the function of the product or service, establish worth for that function, generate alternatives through the use of creative thinking, and provide the needed functions to accomplish the original purpose of the project at the lowest life-cycle cost without sacrificing safety, necessary quality, and/or environmental attributes of the project.

WX

- Work Breakdown Structure - A product-oriented family tree composed of hardware, software, data, facilities, and services that result from systems engineering efforts during the development and production of system elements. Displays and defines the product(s) to be developed or produced, and relates the elements of work to be accomplished to each other and to the end product. Provides structure for guiding multi-disciplinary team assignment and cost tracking and control.

YZ