National Compact Stellarator Experiment

NCSX

DOCUMENTS & RECORDS PLAN

NCSX-PLAN-DOC-04

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RECORD OF REVISIONS

Revision	Date	Originator	Description of Change
0	3/21/03	Simmons	Initial issue.
1	2/11/04	Simmons	Revised to incorporate observations 8a-8e concerning handling and storage of legacy drawings per PPPL Audit # 0308 and NCSX Audit #0314. Changes from Revision 0 underlined.
2	5/27/04	Simmons	Significant revisions of entire document to clarify types of documents and review and concurrence process.
3	12/14/05	Simmons	Clarified storage of supplier submittals.
4	10/26/06	Simmons	• Added Sections 5.2.6.8 and 5.3.6.10 on Requests for Deviation. • Added Sections 5.2.12 and 0 on archiving NCSX construction information. • Added Sections 5.2.13 and 5.3.13 on Sensitive Supplier Contract information.

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NCSX DOCUMENT AND RECORDS PLAN

1 PURPOSE

This document defines the official documents and records for the design, fabrication, and construction stages of the NCSX Project, including commissioning prior to first plasma. This document defines the purpose, content, format, approval level, records retention requirements, and file/document naming convention for each document and record. This document meets the requirements of PPPL Policy P-015, Records Management, and GEN-023, Records Management. Section 3 below identifies the specific PPPL and NCSX documents that provided the bases for this plan.

Provisions for the retention, protection, preservation, revision, traceability, accountability, and retrievability of these documents and records are described in the NCSX Data Management Plan (NCSX-PLAN-DMP) and the NCSX Configuration Management Plan (NCSX-PLAN-CMP).

2 DEFINITIONS

Table 2-1 below provides the key record type and their definitions.

Table 2-1 Definitions

Record Type	Definition
Document	Recorded information that describes, specifies, reports, certifies, requires, or provides information, data or results. A document is not a record until it meets the definition of record.
Calculations	Results obtained from mathematical processes used in design, operation, etc.
Guides	A document that provides additional information to NCSX project staff. Examples might be users' guides or documents that describe possible techniques for analysis.
Criteria	A document that defines the design criteria to be used on NCSX.
Procedure	A document that provides an orderly, detailed method of accomplishing tasks within the applicable Laboratory and NCSX guidelines and with established responsibilities and actions.
Record	A completed document or other media that provides objective evidence of an item, service, or process.
Standard	A document that defines the minimum quality and performance outcome of a process.

3 APPLICABLE DOCUMENTS

This DOC draws on the lastest issues of the PPPL and NCSX documents listed below:

3.1 PPPL Documents

- PPPL Policy 015, “Records Management”
- PPPL General Procedure 023, “Records Management”
- PPPL Engineering Procedure 010, “Control of Drawings, Software, and Firmware”
- PPPL Engineering Procedure 030, “Technical Procedures for Experimental Facilities”
- PPPL Engineering Procedure 032, “Work Planning”

- PPPL Engineering Procedure 033, "Design Verification"
- PPPL ES&H Procedure 004, "Job Hazard Analysis"
- PPPL ES&H Procedure 014, "NEPA Review System"
- PPPL QA Records Plan QP-02, "Quality Assurance Records"

3.2 NCSX Project Documents

- NCSX Systems Engineering Management Plan (NCSX-PLAN-SEMP)
- NCSX Quality Assurance Plan (NCSX-PLAN-QAP)
- NCSX Configuration Management Plan (NCSX-PLAN-CMP)
- NCSX Data Management Plan (NCSX-PLAN-DMP)
- PPPL Pro/INTRALINK Users Guide (NCSX-GUID-Pro/INTR)
- NCSX Administrative Procedure 002, "Configuration Control"
- NCSX Administrative Procedure 003, "Interface Control"
- NCSX Administrative Procedure 004, "Work Planning"
- NCSX Administrative Procedure 005, Electronic Signatures"
- NCSX Administrative Procedure 012, Archiving NCSX Construction Information

4 RECORDS RETENTION REQUIREMENTS

The contract between Princeton University and the Department of Energy requires that a records management and retention program be established and implemented at PPPL that meets the requirements of DOE O 200.1. Procedure GEN-023 provides the overall laboratory plan for complying with this requirement. The purpose of this section is to identify key NCSX documents and how they fit into the overall scheme. This section focuses on documentation relevant to the design and documentation of NCSX. Documentation associated with other stages, such as operations or decommissioning and dismantlement will be identified in later versions.

NCSX Project documentation include the design and requirements documents and records that define and substantiate the design, fabrication, modification, and operation of the NCSX device or define and document the management approaches and procedures that govern how the Project is managed. Section 5.3 to this plan provides a more detailed breakdown of the specific types of documents. The documents listed in this section represent the current information on the documents currently planned for the NCSX Project. It is anticipated that this listing will be expanded and/or modified as the need for additional documentation is identified, but typically these records include the following:

- Project Plans
- Project Procedures
- Guideline Documents
- Criteria Documents
- Project Requirements Documents
- Design Support Documentation
    - Drawings and Models
    - Interface Control Documents
    - Analyses and Calculations
    - Design Memoranda

    - Field Activity Documents
    - Design Review Records
    - Engineering Change Proposals (ECPs) and Engineering Change Notices (ECNs)
    - Requests for Deviation (RFDs)
    - Job Hazard Analyses (JHAs)
    - Work Planning (WP) Form
- NEPA Documentation
    - Environmental Assessment
    - NEPA Planning Form
    - Safety Assessment Document
- Quality Assurance Records
- Training Records
- Procurement Records
    - Contacts
    - Statements of Work
    - Procurement Deliverables
- Other Documents
    - WBS Dictionary
    - Milestone Dictionary
    - Cost and Schedule Documents
    - NCSX Construction Information

Crosscutting this documentation organization are the DOE guidelines and PPPL Procedure GEN-023, which defines retention requirements by DOE record type.

Table 4-1 below provides the document retention requirements by type of record:

Type of Record	NCSX Record Key	DOE Record Retention Schedule (GEN-023)	Retention Requirement (GEN-023)
Initial planning documents	DC1	14	Until construction project completion
NEPA documentation and other records	DC2	E	25 years – need DOE approval to dispose of
Other technical information and/or data prepared for outside (of DOE) agencies	DC3	O	10 years – need DOE approval to dispose of
Design requirements/design, criteria, and operations documentation records that demonstrate the capability for safe design, fabrication, modifications, and operations. Includes both in-house manufacturing and supplier manufacturing records.	DC4	14	Until dismantlement or disposal
Project decommissioning and dismantlement records	DC5	E	75 years after decommissioning and dismantlement
Project management records	DC6	A16	1 year after end of NCSX experimental operations
Miscellaneous records supporting, but not required for project record purposes	DC7	14	Until construction project completion or superseded

Table 4-1 Document Retention Requirements

5 DOCUMENTS AND RECORDS

5.1 General

5.1.1 Record Information Provided

For each document or record listed in Section 5.3, the following information is provided:

- Purpose - This gives the purpose of the document. If relevant, this also defines the circumstances under which the document may serve as an official NCSX record.
- Preparation and Approval - This defines the individuals responsible for preparing and approving the specified document. The individual with approval authority is also responsible for ensuring that ALL appropriate personnel have formally reviewed the document and that comments have been properly treated prior to approving the document. The NCSX philosophy is to limit the number of approvals within the NCSX Project to as few as possible. Revisions are uniquely identified and undergo the same approval process as the original document.
- Format - This indicates where the required format for the document is specified. Documents that are unique, i.e. only one is expected to be generated for the project,

may have no specified format. The format selected should be that most appropriate to the document.

- Naming Convention - This specifies both the identifier for the document and the name of the file containing the document.
- Storage Location – either the NCSX Engineering Web page http://ncsx.pppl.gov/NCSX_Engineering/, the Pro/INTRALINK database, or in hardcopy format in the PPPL Operations Center or PPPL Drafting Center. Documents posted on the Engineering Web page will be in a pdf format and drawings and models residing on the Pro/INTRALINK database will be posted as ProEngineer drawings and models if created in the ProEngineer software, in AutoCAD if created in AutoCAD, or in other Project-approved electronic drawing software programs. Drawings released for fabrication will be stored in a special Released Drawings folder within the Pro/INTRALINK database in pdf format. Documents stored in hardcopy in the PPPL Operations Center or PPPL Drafting Center will be accepted in whatever format supplied.
- Document Retention Classification – The document retention classification is defined for each document. Retention requirements are specified by document retention classification in Table 4-1.

5.1.2 Document Storage

To the extent feasible, all NCSX records other than drawings and models will be stored electronically on a secure NCSX web page. As indicated in the NCSX Data Management Plan (DMP), drawings and models will be stored electronically in the Pro/INTRALINK database. Project participants will have access to these documents through the Internet.

5.1.3 Document Review and Approval

For the initial review of a document, a full representation of electronic concurrence and approval signatures will be obtained. Subsequent revisions will only have the preparer and approval signatures shown. However, the project will obtain and resolve comments formally using an Excel spreadsheet format or CHIT form similar to that used for design reviews. The resolution of these comments will be posted on the NCSX Engineering Web page http://ncsx.pppl.gov/NCSX_Engineering/ along with the most recently approved version of this document.

To facilitate clear identification of review comments, the reviewer should attach his or her initials following the draft identifier (e.g, dA-GHN where GHN are the initials of the reviewer). Upon receipt of the comments, the author should incorporate and/or resolve the comments and then, if appropriate, advance the draft identifier one letter (e.g., from dA to dB) and resubmit for further review. If not needed, the document may go directly into the electronic signature process. NCSX Administrative Procedure NCSX-PROC-005 outlines the electronic signature process.

5.2 Identification Schemes

5.2.1 Project Plans

File names for controlled project plans should be the same as the document name followed by an appropriate descriptor. This document name shall consist first of the following

information, separated by hyphens (no spaces). For example, NCSX-PLAN-XXXX-YY-dZ where:

- NCSX indicates the NCSX Project
- PLAN indicates that this document is either a project definition agreement or plan and PROC indicates that this is a procedure.
- XXXX is a three or four letter shorthand name of the project definition agreement or plan (e.g., SEMP for the Systems Engineering Management Plan, CMP for the Configuration Management Plan, DOC for the Document and Records Plan, etc.). For a procedure, this shorthand name for the procedure is replaced by a numerical identifier for that procedure (e.g., 001, 002, etc.).
- YY indicates the revision level of the document (e.g. 00 for revision 0)
- dZ represents the approval level (e.g., dA or signed)

Section 5.3.1 provides specific details on each project plan.

5.2.2 NCSX Project Procedures

5.2.2.1 Administrative Procedures

File names for controlled project plans should be the same as the document name followed by an appropriate descriptor. This document name shall consist first of the following information, separated by hyphens (no spaces). For example, NCSX-PROC-XXX-YY-dZ where:

- NCSX indicates the NCSX Project
- PROC indicates that this is an administrative procedure.
- XXX is a three digit numerical identifier for that procedure (e.g., 001, 002, etc.).
- YY indicates the revision level of the document (e.g. 00 for revision 0)
- dZ represents the approval level (e.g., dA or signed)

Section xxx provides information on the NCSX administrative procedures.

5.2.2.2 Technical Procedures

PPPL Procedure ENG-030, "Technical Procedures for Experimental Facilities," provides guidelines and format requirements for preparing, reviewing, and approving these technical procedures. ENG-030 defines the nine (9) procedure types. These procedures names shall consist first of the following information, separated by hyphens (no spaces). For example, C/D-NCSX-XXXXX-YYY-RR_dZ where:

- C/D indicates either C-Site (C) or D-Site (D)
- NCSX indicates the NCSX Project
- XXXXX indicates that this procedure type where:
  - OP-AD indicates an Administrative Operations procedure
  - OP-G indicates a General Operating procedure
  - PTP –YYY indicates a preoperational procedure/plan where YYY is the 2 or 3-digit WBS identifier
  - ISTP indicates an integrated system test procedure

        - OP-YYY indicates a systems operations procedure where YYY is the 2 or 3-digit WBS identifier
        - AP-YYY indicates an alarm procedure where YYY is the 2 or 3-digit WBS identifier
        - IP indicates an installation procedure
        - MP-YYY indicates a maintenance procedure where YYY is the 2 or 3-digit WBS identifier
        - RP-YYY indicates a repair procedure where YYY is the 2 or 3-digit WBS identifier
    - YYY is a two or three numerical number of the procedure.
    - RR indicates the revision level of the document (e.g. 00 for revision 0)
    - dZ represents the approval level (e.g., dA or signed)

The majority of technical procedures during the design and construction phase of NCSX will be installation (IP) or repair (RP) procedures. Section 5.2.2.2 provides detailed information on the NCSX technical procedures.

5.2.3 Guideline Documents

It is anticipated that the NCSX Project will periodically find the need to publish guidelines documents that provide an oversight to technical systems and guidelines on how to perform specific functions such as cost estimates. The ProE/INTRALINK Users Guide and the Cost Estimating Guide fall in this category. These guideline documents shall be identified with the following naming scheme: NCSX-GUID-XXXX-YY-dZ where:

NCSX-GUID-XXXX-YY-dZ where:

- NCSX represents the NCSX Project
- GUID represents that this document is a guide and/or criteria document
- XXXX represents a shorthand notation of the topic of the guide or criteria document
- YY represents the current revision
- dZ represents the approval level (e.g., dA or signed)

5.2.4 Technical Criteria Documents

It is anticipated that the NCSX Project will periodically find the need to publish technical criteria documents that define the technical criteria that will be utilized to control design processes. As an example, the NCSX Project has developed a Structural and Cryogenic Design Criteria document that defines the criteria to be use when developing the NCSX stellarator core systems. These criteria documents shall be identified with the following naming scheme: NCSX-CRIT-XXXX-YY-dZ where:

- NCSX represents the NCSX Project
- GUID represents that this document is a guide and/or criteria document
- XXXX represents a shorthand notation of the topic of the guide or criteria document
- YY represents the current revision
- dZ represents the approval level (e.g., dA or signed)

5.2.5 Requirement Documents

As indicated in the Systems Engineering Management Plan (NCSX-PLAN-SEMP), there is a hierarchy of 5 design specification levels starting at the top-level General Requirements Document (GRD). In systems engineering terms, this is the ASPEC. This top-level specification is then followed by a specification tree consisting of Developmental (or "design to") specifications (BSPECs) and a series of "build to" specifications consisting of Product (CSPECs), Process (DSPECs) and Material (ESPECs). The naming convention for specifications shall first consist of the following information, separated by hyphens (no spaces). For example, NCSX-STYPE-WBS-###-XX-dZ where:

- NCSX indicates the NCSX Project
- STYPE indicates the level of specification (e.g., ASPEC for the GRD, BSPEC for the "design to" specification, and CSPEC, DSPEC, or ESPEC for "build to" specifications)
- WBS indicates the three digit WBS number identifier
- ### indicates the three digit numerical number of the specification (e.g., 001, 002, etc.)
- XX indicates the revision level of the document (e.g. 00 for Revision 0)
- dZ represents the approval level (e.g., dA or signed)

Section 5.3.5 provides additional details for specifications.

5.2.6 Design Support Documentation

5.2.6.1 Drawings and Models

5.2.6.1.1 Electronic Drawings and Models

The vast majority of NCSX models and drawings will exist in electronic form. The Pro/INTRALINK Users Guide (NCSX-CRIT-Pro/INTR) provides the details for numbering electronic drawings and models. Drawings and models are created and maintained electronically using NCSX Project approved drawing software packages. For Mechanical and Facility drawings and models (in either 2D or 3D), the Project standard is Pro/Engineer. For Electrical drawings and models (usually only in 2D), the Project standard is AutoCAD. As approved by the Project on a case-by-case basis, other electronic drawing software packages may be utilized.

Since the NCSX Project is a national project involving both PPPL and ORNL, a flexible identification scheme has been developed for drawings and models that recognize the specific requirements of each laboratory, while still providing a standardized approach. The NCSX drawings will evolve from a concept stage through release for fabrication. During the conceptual design phase, an additional concept identifier is added to the standardized drawing number. In all cases, the drawing/model numbers will take a form that follows the NCSX WBS structure.

Several specific drawing types have unique drawing identifiers to set them apart from "regular" drawings. These are sketches, prototype, and as-built drawings. Specifics on the drawing numbering scheme for each is outlined in the Pro/INTRALINK Users Guide, however a brief description of each is described below:

- Sketches have a special numbering scheme. Sketch numbers are assigned for ideas still in the early developmental stages, e.g., before a concept approach has been decided.
- Prototype drawing numbers will be assigned for every prototype drawing since, typically, the prototype model is not expected to represent the final production unit. Prototype drawings and models will have a special designation "P" placed at the end of the standard drawing number. Should a prototype eventually be designated as a final production unit, the prototype drawing will be converted to a regular drawing that will undergo the normal FDR process before being released for final fabrication. PPPL Engineering Procedure ENG-033, as supplemented by NCSX Procedure 004 outlines the design review processes.
- As-Built drawings are only assigned when the physical model needs to be revised because the non-conformance impacts a primary interface. Non-conformances that do not impact other component or system interfaces do not result in a revised drawing although the higher-level model will be annotated with a drawing note to indicate that a specific NCR exists. If a drawing needs to be modified to reflect this non-conformance, a new drawing will be created with the designator "AB" placed at the end of the drawing number to identify those parts revised.

In addition to the basic drawing number, there are three other bits of information that clearly identify the unique drawing. Until a drawing is released for fabrication, it will not be assigned a revision number. However, once the drawing is approved and released for fabrication, a revision number will be assigned in the drawing title block; until that occurs, the revision block on the drawing will be blank. However, the evolution of the drawing will be tracked by the version number that appears in an ancillary design status block separate from the drawing main title block. In addition, this ancillary design status block will identify the stage of the design of the drawing (e.g., conceptual, preliminary, or final) so that a user might understand the level of design evolution shown on the drawing.

5.2.6.1.2 Legacy Drawings

The NCSX Project will utilize a significant amount of PPPL legacy equipment and systems. The drawings are primarily only available in a hard copy vellum or other physical medium. They will be maintained in this format and be utilized by NCSX, maintaining the original numbering system. Several important cautions must be observed when utilizing these drawings.

As part of the preparations of C-Site to accommodate the NCSX device, a significant amount of demolition and modifications to existing PPPL systems and infrastructure was accomplished. Prior to utilizing existing legacy drawings, the WBS Manager must first assure that the current legacy drawings accurately reflect the current as-built status of those systems. If not accurate, the decision needs to be made as to whether or not to modify existing legacy hard copy drawings or to create new drawings in an electronic format.

Prior to discarding legacy hard copy drawings for legacy systems removed or modified in preparation for the NCSX, knowledgeable personnel from the NCSX Project and the PPPL Engineering Department need to review the drawings to determine their disposition and/or the need to modify existing drawings or to create new drawings for use on NCSX.

5.2.6.2 Interface Control Documents

The NCSX Interface Control Management Plan (ICMP) and the NCSX procedure on interface control (NCSX-PROC-003) provide the background and processes for identifying and documenting interfaces between subsystems. File names for Interface Control Documents (ICDs) shall follow a standard format to facilitate filing and sorting. ICDs shall be identified as ICD-XXX-YYY-ZZZZ-dR where:

- XXX and YYY represents the 3-digit WBS identifiers of each of the subsystems involved in the interface with the lowest numberical WBS identifier listed first
- ZZZZ represents the numerical sequence assigned to this ICD by the Systems Engineering Support Manager
- dR represents the approval level (e.g., dA or signed)

5.2.6.3 Analyses and Calculations

File names for analyses and calculations shall follow a standard format to facilitate filing and sorting. Analyses and calculations should be formally approved as per PPPL Engineering Procedure, ENG-033, "Design Verification." The format for analyses and calculations should be as follows: NCSX-CALC-XX-YYY-ZZ where:

- NCSX represents the NCSX Project;
- CALC represents a calculation or analysis – the type of calculation should be included in the purpose of the calculation/analysis section on the calculation form;
- XX represents the appropriate 2-digit WBS number (e.g., 14, etc.); and
- YYY represents the sequential analysis report number. This is obtained from NCSX Systems Engineering as a satellite to the PPPL Operations Center.
- ZZ indicates the revision level of the document (e.g. 00 for Revision 0)

5.2.6.4 Design Memoranda

Sometimes a design memo is warranted to explain some details of the design. File names for these design memos shall follow a standard format to facilitate filing and sorting. The format should be as follows: YYMMDD-Subject-XXX-ZZZ.ext where:

- YYMMDD is the date of issue (e.g., 021127 indicating a date of issue of November 27, 2002)
- Subject is a brief description of the topic covered in the memo, calculation, etc.=> no blanks permitted, use underscores (_) to separate text.
- XXX is the 1, 2 or 3-digit numeric ID for the most appropriate WBS element.
- ZZZ are the author's initials => should be at least 2 letters, but three letters are preferred.
- .ext it the extension (e.g., .doc for Word, .ppt for PowerPoint, etc.)

5.2.6.5 Field Activity Documents

Field activity documents refer to a large number of documents that are used to guide or document work occurring in the field. Most field work is governed by PPPL procedures, sometimes called traveler documents. For unique field activities only applicable to NCSX (e.g., coil winding activities) and where existing PPPL procedures are not deemed adequate,

the NCSX Project may elect to develop its own field activity procedures. Specific identification schemes shall be governed by the applicable procedures.

5.2.6.6 Design Review Records

The NCSX Systems Engineering Management Plan (SEMP), NCSX Procedure on Work Planning (NCSX-PROC-004), and PPPL Engineering Procedures ENG-032. "Work Planning," and ENG-033, "Design Verification" outline the design review processes and the necessary documentation necessary. Specific identification schemes are identified in those plans and procedures.

5.2.6.7 Engineering Change Proposals/Engineer Change Notices

The NCSX Configuration Management Plan (NCSX-PLAN-CMP) and the NCSX procedure on configuration control (NCSX-PROC-002) provide the background and processes for proposing and documenting changes to the technical, cost, and schedule baselines. The NCSX procedure on configuration control specifies the process and identification scheme for ECPs.

The PPPL Engineering Procedure ENG-010, "Control of Drawings, Software, and Firmware" provides the processes for documenting and making changes to drawings approved for Fabrication. PPPL utilizes a form called the Engineering Change Notice (ECN). As described in the NCSX Configuration Management Plan, an ECP will always precede the issuance of an ECN for NCSX drawings. Per ENG-010, ECNs are only numbered sequentially by the PPPL Drafting Supervisor, with no special identification reserved for specific projects.

5.2.6.8 Requests for Deviation

The RFD is a specific written request to depart from a particular requirement(s) of the item's current approved design documentation (e.g., specifications, models, drawings, Bills of Material, etc.). ***RFDs should not be utilized to approve deviations to design implementation documentation such as MIT/QA Plans or run procedures.*** RFDs shall be processed and adjudicated under the Engineering Change Process (ECP) process defined in the NCSX Configuration Management Plan (NCSX-PLAN-CMP) and the accompanying NCSX Configuration Control Procedure (NCSX-PROC-002) unless a determination is made by the NCSX Engineering Manager that an ECP is not required (generally for editorial-type RFDs or process RFDs). The NCSX procedure on RFDs (NCSX-PROC-009) specifically addresses the processes to prepare and process a RFD.

5.2.6.9 Job Hazard Analyses

As part of the job planning process, Job Hazard Analyses (JHA's) are required for work at C or D site in order to identify existing and potential workplace hazards and to evaluate the risk of worker injury or illness associated with job task activities. PPPL Procedure ESH-004, "Job Hazard Analysis," outlines the purposes, considerations, and processes for developing a JHA. This procedure also provides for an identification scheme that is linked to the appropriate work order, work permit, work planning form, procedure, or other unique identifier that clearly identifies which job and project the JHA represents.

5.2.6.10 Work Planning Forms

The Work Planning (WP) Form is the key work planning document for all phases of projects designed and constructed at PPPL. It documents the work planning logic in the form of a checklist of activities and deliverables that need to be completed in preparation for the next formal design review (preliminary or final), on-site fabrication activities (including R&D activities), and field assembly and installation activities. PPPL Engineering Procedure ENG-032, "Work Planning," and the NCSX augmenting procedure on work planning (NCSX-PROC-004) provide the detailed requirements for preparing a WP. The WP is web based http://workplanning.pppl.gov/ and a sequential WP number automatically assigned.

5.2.7 NEPA Documentation

5.2.7.1 Environmental Assessment

The Environmental Assessment (EA) is a unique document approved in September 2002 that documented the environmental impact of constructing NCSX at PPPL. This document was assigned a number of DOE/ES-1437 by DOE. Revisions to this EA, if ever needed, will retain this basic project identifier.

5.2.7.2 NEPA Planning Forms

For tasks performed at C or D sites, an assessment must be made to ensure compliance with the National Environmental Policy Act (NEPA) of 1969. While it is recognized that many activities are either inherently low hazard and are routinely encountered and/or accepted by the general public. PPPL ES&H Procedure ESH-014, "National Environmental Policy Act (NEPA) Review System," provides the guidance and processes to be followed for evaluating and documenting potential NEPA hazards. There are no unique NEPA form project identifier numbering schemes (i.e., they are given sequential numerical identifiers), however the project information is provided on the form.

5.2.7.3 Safety Assessment Document

The Safety Assessment Document (SAD) is a unique document that presents the safety assessment of the NCSX Project. The SAD provides descriptions of relevant structures, systems, and components. The hazards associated with the operation are identified and the design features and/or administrative controls that mitigate these hazards are identified.

5.2.8 Quality Assurance Records

As indicated in the PPPL Quality Assurance Records Plan (QP-002) and the NCSX Quality Assurance Plan (NCSX-PLAN-QAP) there are many records maintained and controlled by the PPPL and NCSX Quality Assurance program. These records include:

- Audits
- Risk Acceptance Plans
- Nonconformance Reports

The identification schemes for each QA record and document is outlined in the QA Records Plan.

5.2.9 Training Records

There are many training records; overall PPPL training records, Engineering Department training records, and NCSX Project-specific training records. The types of records are outlined in the NCSX Training Plan (NCSX-PLAN-TRNG). Generally PPPL Human Resources will be responsible for maintaining and controlling all training records. The identification scheme is linked to the specific employee and the specific training code assigned by Human Resources.

5.2.10 Procurement Records

5.2.10.1 Contracts

The basic governing procurement record is the contract. This document, prepared by the PPPL Procurement Department, provides the basis and terms and conditions under which PPPL has reached an agreed upon scope of work and price for contracted work. The Procurement Department establishes the contract identifier.

5.2.10.2 Statements of Work

Statements of Work (SOW) are designed to provide the specific contractual requirements and expected deliverables for a contract. ***Used primarily in the initial solicitation process, the SOW is not a technical document, but references to technical specifications and drawings are included.*** File names for SOWs shall follow a standard format to facilitate filing and sorting. SOWs shall be identified as NCSX-SOW-XXX-YYY-ZZ-dR where:

- XXX represents the 3-digit WBS identifier of the subsystem for which the work will be performed
- YYY represents the numerical sequence of the SOW in this WBS element. This is assigned Cognizant Engineer following consultation with the Systems Engineering Support Manager
- ZZ indicates the revision level of the document (e.g. 00 for revision 0)
- dR represents the approval level (e.g., dA or signed)

5.2.10.3 Procurement Deliverables

Each contract has its own set of unique deliverables that are required under that contract. Starting with the basic contract document, an increasing more detailed list of contract deliverables is identified. These contract deliverables are expected to be provided to PPPL by the supplier. The identification scheme is established by the supplier.

A special subset of the procurement deliverables is those items of a procurement sensitive nature that requires special handling. These generally cover topics dealing with technical issues or problems and may either originate at PPPL or the supplier. A special restricted and controlled web site has been established to provide protected storage site for procurement sensitive information.

5.2.11 Other Documents

5.2.11.1 WBS Dictionary

The Work Breakdown Structure (WBS) is 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. The WBS Dictionary provides an abbreviated definition of the 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.

5.2.11.2 Milestone Dictionary

The Project Execution Plan identifies the DOE milestones for the NDCS Project. The Milestone Dictionary provides the definition and completion criteria for each of these DOE milestones.

5.2.11.3 Cost and Schedule Documents

There are a series of cost and schedule documents that define and provide a chronological record of the development of the cost and schedule baselines. These records include the Primavera Project Planner (P3) documentation, the Work Authorization Forms (WAFs), and other specific cost and schedule guidance and analyses.

5.2.12 NCSX Construction Information

As the NCSX Project transitions into construction and eventual operation, it is essential to archive pertinent construction information that can provide insights at a later time when potential and real machine issues arise as to exactly what occurred during the construction and assembly phases. While systems are already in place to archive some contract information from vendors, there is a need to document and archive pertinent contract information such as:

- Project discussions/bases of decision on NCRs, RFDs, and other changes to the originally approved design;
- Schedule and periodic status reports from vendors;
- Internal NCSX Project correspondence (e-mails, internal NCRs, etc.) that provide insights into why decisions were made;
- Picture records; and
- Other pertinent contract related information deemed retainable by either the Cognizant Engineer or Procurement Technical Representative.

In addition to vendor construction and fabrication information and submittals, it is also critical to archive NCSX Project fabrication information not already stored in the PPPL Operations Center (e.g., fabrication run procedures, modular coil data books, photographs, etc.). An important category of this information is the metrology data that was used to determine fabrication and assembly processes as well as dimensional control analyses and revisions to the Pro/E models that resulted from this metrology information.

What should not be archived is any contract-sensitive information or correspondence. This is retained either by the PPPL Procurement Department or on private web sites with very limited access privileges.

Storage of this information has been set up on the PPPL Network 'P' Drive in a folder (and lower level series of subfolders) titled, "Construction Information".

There is a unique naming scheme utilized for posting certain construction information such as metrology data and photographs. It uses the format of "Month_Day_Year_Component_Description". For example, for the initial measurement of a A2 winding form, the data naming will take the format of "10_18_06_A2_WindingForm_InitialScan" where:

- 10_18_06 where 10 represents October, 18 represents the date, and 06 represents the calendar year;
- A2_WindingForm identifies the component; and
- IntialScan is a description of the metrology data measurement.

5.2.13 Sensitive Supplier Contract Information

The NCSX Project has a need to store sensitive contract information received from suppliers. While formal contract submittals are stored by the Procurement files on the contract, there are numerous less formal contract-sensitive correspondence provided between the suppliers and the NCSX Project that should be filed. Accordingly, the Project has established a secure site where this information is stored. Access to this site is limited to preserve the security of this information.

5.3 Document and Record Types

5.3.1 Project Plans

5.3.1.1 Acquisition Execution Plan (AEP) - unique

Purpose	Describes the acquisition strategy and business plans to be used in the execution of the NCSX Project.
Review and Approval	Prepared by: NCSX Systems Engineering Support Manager Concurrences by: NCSX Project Management, PPPL and ORNL Lab Management, DOE Federal Project Manager, DOE Manager Princeton Area Office and Contracting Officer, DOE OFES Program Manager, OFES Associate Director for Fusion Energy Sciences, Director Office of Science, and DOE Director of Office of Construction and Engineering Management (OECM) Approved by: DOE Under Secretary for Energy, Science, and Environment
Format	--
Naming Convention	NCSX-PLAN-AEP-XX-YY where XX is the revision number and YY is the level of approval (e.g. draft [dA] or approved [signed])
Storage Location	NCSX Engineering Web Page
Document Retention Key	DC6

5.3.1.2 Project Execution Plan (PEP) - unique

Purpose	Describes management methodology to be applied during the design and fabrication stages of the NCSX project.
Review and Approval	Prepared by: NCSX System Engineering Support Manager Reviewed by: NCSX Project Control Manager, NCSX Project Engineering and Management, PPPL and ORNL Lab Management, DOE Federal Project Manager, OFES Program Manager, DOE Director Construction Support Division, DOE Manager Chicago Operations Office Approved by: DOE Associate Director of Fusion Energy Sciences
Format	--
Naming Convention	NCSX-PLAN-PEP-XX-YY where XX is the revision number and YY is the level of approval (e.g. draft [dA] or approved [signed])
Storage Location	NCSX Engineering Web Page
Document Retention Key	DC6

5.3.1.3 Quality Assurance Plan (QAP) - unique

Purpose	Provides matrix of PPPL quality requirements to implementing plans and procedures
Review and Approval	Prepared by: NCSX QA Manager Reviewed by: NCSX Engineering Manager, NCSX Project Manager, NCSX Deputy Project Manager for Program, and PPPL Engineering Department Head Approved by: PPPL ES&H/IS Department Head* and PPPL Director
Format	--
Naming Convention	NCSX-PLAN-QAP-XX-YY where XX is the revision number and YY is the level of approval (e.g. draft [dA] or approved [signed])
Storage Location	NCSX Engineering Web Page
Document Retention Key	DC6

5.3.1.4 Systems Engineering Management Plan (SEMP) - unique

Purpose	Describes engineering management methodology and systems to be applied during the design and fabrication stages of the NCSX project.
Review and Approval	Prepared by: NCSX Engineering Manager Reviewed by: NCSX Systems Engineering Support Manager, NCSX Project Engineers, NCSX QA Manager, and NCSX Deputy Project Manager for Engineering Approved by: NCSX Project Manager
Format	--
Naming Convention	NCSX-PLAN-SEMP-XX-YY where XX is the revision number and YY is the level of approval (e.g. draft [dA] or approved [signed])
Storage Location	NCSX Engineering Web Page
Document Retention Key	DC6

[*•] Required only when the NCSX QA Manager is also the PPPL QA Manager.

5.3.1.5 Configuration Management Plan (CMP) - unique

Purpose	Provides a description of the processes that will be used to effect configuration management on the NCSX Project
Review and Approval	Prepared by: NCSX Systems Engineering Support Manager Reviewed by: NCSX Project Control Manager, NCSX Deputy Project Manager for Engineering, NCSX QA Manager, NCSX Physics Manager, NCSX Project Engineers, and NCSX Engineering Manager Approved by: NCSX Project Manager
Format	--
Naming Convention	NCSX-PLAN-CMP-XX-YY where XX is the revision number and YY is the level of approval (e.g. draft [dA] or approved [signed])
Storage Location	NCSX Engineering Web Page
Document Retention Key	DC6

5.3.1.6 Project Documents & Records Plan (DOC) - unique

Purpose	Describes the official documents and records of the NCSX project. (This document)
Review and Approval	Prepared by: NCSX System Engineering Support Manager Reviewed by: NCSX Design Integration Manager, NCSX Deputy Project Manager for Engineering, NCSX Project Engineers, and NCSX QA Manager Approved by: NCSX Engineering Manager
Format	--
Naming Convention	NCSX-PLAN-DOC-XX-YY where XX is the revision number and YY is the level of approval (e.g. draft [dA] or approved [signed])
Storage Location	NCSX Engineering Web Page
Document Retention Key	DC6

5.3.1.7 Interface Control Management Plan (ICMP) - unique

Purpose	Provides a description of the processes that will be used to effect interface control on the NCSX Project
Review and Approval	Prepared by: NCSX System Engineering Support Manager Reviewed by: NCSX Deputy Project Manager for Engineering, NCSX Project Engineers, and NCSX QA Manager Approved by: NCSX Engineering Manager
Format	--
Naming Convention	NCSX-PLAN-ICMP-XX-YY where XX is the revision number and YY is the level of approval (e.g. draft [dA] or approved [signed])
Storage Location	NCSX Engineering Web Page
Document Retention Key	DC6

5.3.1.8 Data Management Plan (DMP) - unique

Purpose	Provides a description of the processes that will be used to effect document and drawing control on the NCSX Project
Review and Approval	Prepared by: NCSX System Engineering Support Manager Reviewed by: NCSX Project Engineers and NCSX QA Manager Approved by: NCSX Engineering Manager.
Format	--
Naming Convention	NCSX-PLAN-DMP-XX-YY where XX is the revision number and YY is the level of approval (e.g. draft [dA] or approved [signed])
Storage Location	NCSX Engineering Web Page
Document Retention Key	DC6

5.3.1.9 Test and Evaluation Plan (TEP) - unique

Purpose	A Test and Evaluation Plan (TEP) establishes how integrated system testing will be performed and managed. The TEP will include an overview and schedule of the integrated system test program and the purpose, scope, and objective of each system test; test configurations; and test responsibilities. The TEP will be an overview of the necessary follow-on ISTPs that will be developed for the integrated system testing.
Review and Approval	Prepared by: NCSX Construction Manager Reviewed by: NCSX Deputy Project Manager for Engineering, NCSX Project Engineers, NCSX QA Manager, and PPPL Engineering Department Head Approved by: NCSX Engineering Manager
Format	--
Naming Convention	NCSX-PLAN-TEP-XX-YY where XX is the revision number and YY is the level of approval (e.g. draft [dA] or approved [signed])
Storage Location	NCSX Engineering Web Page
Document Retention Key	DC6

5.3.1.10 NCSX Experimental Plan (EXP) - unique

Purpose	Provides an overview of the planned phases of NCSX operation
Review and Approval	Maintained by: NCSX Physics Head *Uncontrolled document*
Format	--
Naming Convention	NCSX-PLAN-EXP-XX-YY where XX is the revision number and YY is the level of approval (e.g. draft [dA] or approved [signed])
Storage Location	NCSX Engineering Web Page
Document Retention Key	DC6

5.3.1.11 Reliability/Availability/Maintainability Plan (RAM) – unique

Purpose	Provides an overview of the reliability, availability, and maintainability program for the NCSX Project.
Review and Approval	Prepared by: NCSX System Engineering Support Manager Reviewed by: NCSX Project Engineers and NCSX QA Manager Approved by: NCSX Engineering Manager.
Format	--
Naming Convention	NCSX-PLAN-RAM-XX-YY where XX is the revision number and YY is the level of approval (e.g. draft [dA] or approved [signed])
Storage Location	NCSX Engineering Web Page
Document Retention Key	DC6

5.3.1.12 Training Plan (TRNG) – unique

Purpose	Defines the personnel training requirements for the NCSX Project.
Review and Approval	Prepared by: NCSX Systems Engineering Support Manager Reviewed by: NCSX Project Engineers, QA Manager, NCSX Engineering Manager, and PPPL Training Manager Approved by: NCSX Project Manager.
Format	--
Naming Convention	NCSX-PLAN-TRNG-XX-YY where XX is the revision number and YY is the level of approval (e.g. draft [dA] or approved [signed])
Storage Location	NCSX Engineering Web Page
Document Retention Key	DC6

5.3.1.13 NCSX Cost Estimating Guide - unique

Purpose	Provides an overview of the requirements and assumptions needed to develop cost and schedule estimates for the NCSX Project.
Review and Approval	Prepared by: NCSX System Engineering Support Manager Reviewed by: NCSX Project Control Manager and NCSX Engineering Manager. Approved by NCSX Project Manager.
Format	--
Naming Convention	NCSX-PLAN-EST-XX-YY where XX is the revision number and YY is the level of approval (e.g. draft [dA] or approved [signed])
Storage Location	NCSX Engineering Web Page
Document Retention Key	DC6

5.3.2 NCSX Project Procedures

5.3.2.1 NCSX Administrative Procedures – many

Purpose	Provides clarifying administrative guidance and instructions on preparing specific NCSX documents and/or terms. Intended to supplement existing PPPL engineering procedures.
Review and Approval	Prepared by: NCSX System Engineering Support Manager Reviewed by: WBS Managers, NCSX Project Engineers, NCSX QA Manager, NCSX ES&H Engineer and other appropriate NCSX impacted individuals Approved by: NCSX Engineering Manager
Format	--
Naming Convention	NCSX-PROC-###-XX-YY where ### is the numerical number of the procedure, XX is the revision number and YY is the level of approval (e.g. draft [dA] or approved [signed]). Document name provides the scope of the procedure. See Section 5.2.2.1).
Storage Location	NCSX Engineering Web Page
Document Retention Key	DC6

5.3.2.2 NCSX Technical Procedures – many

Purpose	Provides clarifying guidance and instructions on performing specific NCSX technical operations, including installation, maintenance, repairs, etc. (types of technical procedures and preparation guidance is provided in PPPL Engineering Procedure ENG-030). It is noted that until NCSX approaches operations, the only technical procedures anticipated are either installation (IP) or repair (RP) procedures.
Review and Approval	Prepared by: Cognizant Engineer Reviewed by: WBS Managers, NCSX Project Engineers, NCSX QA Manager, NCSX ES&H Engineer and other appropriate NCSX impacted individuals Approved by: NCSX Responsible Line Manager (RLM)
Format	Per ENG-030
Naming Convention	C/D-NCSX-XXXXX-ZZS-RR-AA where C/D represents C or D Site, NCSX is the name of the project, XXXXX is the type of technical operating procedure (see Section 5.2.2.2), ZZZ is the is the 2 or 3 digit numerical number of the procedure, RR is the revision number and AA is the level of approval (e.g. draft [dA] or approved [signed]). Document name provides the scope of the procedure.
Storage Location	NCSX Engineering Web Page
Document Retention Key	DC6

5.3.3 Guideline Documents

5.3.3.1 NCSX Pro/INTRALINK Users Guide (PRO/INTR) – unique

Purpose	The purpose of the NCSX Pro/INTRALINK Users Guide is provide and overview of the INTRALINK drawing and model control system and to outline the general processes. More detailed procedures are found in the specific Pro/E and INTRALINK documentation. (See Section
Review and Approval	Prepared by the NCSX Design Integration Manager. Reviewed by: PPPL Design Branch Head and PPPL Design Supervisor. Approved by: NCSX Project Engineering Manager
Format	--
Naming Convention	NCSX-GUID-PRO/INTR-XX-YY where XX is the revision number and YY is the level of approval (e.g. draft [dA] or approved [signed])
Storage Location	NCSX Engineering Web Page
Document Retention Key	DC4

5.3.3.2 NCSX Cost Estimating Guide (EST) – unique

Purpose	The purpose of the NCSX Pro/INTRALINK Users Guide is provide and overview of the INTRALINK drawing and model control system and to outline the general processes. More detailed procedures are found in the specific Pro/E and INTRALINK documentation. (See Section
Review and Approval	Prepared by the NCSX Design Integration Manager. Reviewed by: PPPL Design Branch Head and PPPL Design Supervisor. Approved by: NCSX Project Engineering Manager
Format	--
Naming Convention	NCSX-GUID-PRO/INTR-XX-YY where XX is the revision number and YY is the level of approval (e.g. draft [dA] or approved [signed])
Storage Location	NCSX Engineering Web Page
Document Retention Key	DC4

5.3.4 Design Guides and Criteria Documents

5.3.4.1 NCSX Structural and Cryogenic Design Criteria (CRYO) – unique

Purpose	The Structural and Cryogenic Design Criteria Document provides the design criteria for designing the NCSX stellarator core.
Review and Approval	Compiled by NCSX engineering staff based on experiences on previous fusion devices, most notably TPX. Approved by: NCSX Project Engineering Manager.
Format	--
Naming Convention	NCSX-CRIT-CRYO-XX-YY where XX is the revision number and YY is the level of approval (e.g. draft [dA] or approved [signed])
Storage Location	NCSX Engineering Web Page
Document Retention Key	DC4

5.3.5 Requirements Documents

5.3.5.1 General Requirements Document (ASPEC) – unique

Purpose	The General Requirements Document (GRD) is a system (top) level specification which states the technical and mission requirements for the entire system (WBS Level 1), allocates requirements to functional areas (WBS elements), documents design constraints, and defines interfaces between or among functional areas
Review and Approval	Prepared by: NCSX Project Engineer Reviewed by: NCSX Physics Manager, NCSX Project Engineers, NCSX QA Manager, NCSX ES&H Manager. Approved by: Project Manager
Format	ENG-006 or equivalent Project standard
Naming Convention	NCSX-ASPEC-GRD-XX-YY where XX is the revision number and YY is the level of approval (e.g. draft [dA] or approved [signed])
Storage Location	NCSX Engineering Web Page
Document Retention Key	DC4

5.3.5.2 Development Specifications (BSPEC) - many

Purpose	Development ("design to") specifications are documents below the system (top) level that state performance, interface, and other technical requirements in sufficient detail to permit design, engineering for service use, and evaluation. Development specifications are intermediate, between the system specification and product specification(s).
Review and Approval	Prepared by: Cognizant WBS Manager Reviewed by: Cognizant WBS Manager (if not the author), Cognizant Project Engineer, and NCSX QA Representative Approved by: NCSX Engineering Manager
Format	ENG-006 or equivalent Project standard
Naming Convention	NCSX- BSPEC-WBS-###-XX-YY where WBS is the three digit WBS identifier, ### is the numerical identifier for that specification within the WBS, XX is the revision number and YY is the level of approval (e.g. draft [dA] or approved [signed]). (Document names assigned by cognizant WBS Manager per prescribed convention)
Storage Location	NCSX Engineering Web Page
Document Retention Key	DC4

5.3.5.3 Product Specifications (CSPEC) - many

Purpose	Product specifications are applicable to production items below the system (top) level. All procurements below the system level should be based on product specifications. Product ("build to") specifications may be oriented towards procurement of a product through specification of primarily functional (performance) requirements or primarily fabrication (detailed design) requirements. A product *functional* specification states (a) the complete performance requirements of the product for the intended use, and (b) the necessary interface and interchangeability characteristics. It covers form, fit, and function requirements. A product *fabrication* specification states (a) a detailed description of the parts and assemblies of the product, usually by prescribing compliance with a set of drawings, and (b) those performance requirements and corresponding tests and inspections necessary to assure proper fabrication, adjustment, and assembly techniques. Tests are normally limited to acceptance tests in a shop environment.
Review and Approval	Prepared by: Cognizant WBS Manager or Technical Representative Reviewed by: Cognizant WBS Manager (if not the author), Cognizant Project Engineer, and NCSX QA Representative Approved by: NCSX Engineering Manager
Format	ENG-006 or equivalent Project standard
Naming Convention	NCSX- CSPEC-WBS-###-XX-YY where WBS is the three digit WBS identifier, ### is the numerical identifier for that specification within the WBS, XX is the revision number and YY is the level of approval (e.g. draft [dA] or approved [signed]). (Document names assigned by cognizant WBS Manager per prescribed convention)
Storage Location	NCSX Engineering Web Page
Document Retention Key	DC4

5.3.5.4 Process Specifications (DSPEC) - many

Purpose	This type of ("build to") specification is applicable to a process which is performed on a product or material. Examples of processes are: heat treatment, welding, plating, and marking. Process specifications cover manufacturing techniques which require a specific procedure in order that a satisfactory result may be achieved. Where specific processes are essential to fabrication or procurement of a product or material, a process specification is the means of defining such specific processes.
Review and Approval	Prepared by: Cognizant WBS Manager Reviewed by: (Determined by WBS Manager – usually someone with expertise in the particular process) Approved by: NCSX Project Engineer
Format	ENG-006 or equivalent Project standard
Naming Convention	NCSX- DSPEC-WBS-###-XX-YY where WBS is the three digit WBS identifier, ### is the numerical identifier for that specification within the WBS, XX is the revision number and YY is the level of approval (e.g. draft [dA] or approved [signed]). (Document names assigned by cognizant WBS Manager per prescribed convention)
Storage Location	NCSX Engineering Web Page
Document Retention Key	DC4

5.3.5.5 Material Specifications (ESPEC) - many

Purpose	This type of ("build to") specification defines the required qualities or condition of raw or semi-fabricated material (e.g., electrical cable, copper tubing) used in fabrication
Review and Approval	Prepared by: Cognizant WBS Manager Reviewed by: (Determined by WBS Manager – usually someone with expertise in the particular material properties) Approved by: NCSX Project Engineer
Format	ENG-006 or equivalent Project standard
Naming Convention	NCSX- ESPEC-WBS-###-XX_YY where WBS is the three digit WBS identifier, ### is the numerical identifier for that specification within the WBS, XX is the revision number and YY is the level of approval (e.g. draft [dA] or approved [signed]). (Document names assigned by cognizant WBS Manager per prescribed convention)
Storage Location	NCSX Engineering Web Page
Document Retention Key	DC4

5.3.6 Design Support Documentation

5.3.6.1 Electronic Design Drawings and Models – many

Purpose	Drawings and models represent the physical configuration of the Project in either 2D or 3D.
Review and Approval	Prepared by: Designer or Cognizant Engineer Reviewed by: Cognizant Engineer (if not the creator of the drawing, WBS Manager, and Design Integration Manager Approved by: Cognizant Project Engineer and PPPL Drafting Supervisor
Format	PPPL or ORNL Drawing Standards using ProEngineer, AutoCAD, or other Project-approved drawing software package.
Naming Convention	As indicated in paragraph 5.2.6.1.1 of this Document and Records Plan
Storage Location	Pro/INTRALINK Database
Document Retention Key	DC4

5.3.6.2 Legacy Drawings – many

Purpose	Physical hard copy drawings representing PPPL legacy equipment and systems.
Review and Approval	Prepared by: Designer or Cognizant Engineer Reviewed by: Cognizant Engineer (if not the creator of the drawing, WBS Manager, and Design Integration Manager Approved by: Cognizant Project Engineer and PPPL Drafting Supervisor
Format	PPPL Drawing Standards
Naming Convention	As indicated in Section 5.2.6.1.2 of this Document and Records Plan
Storage Location	PPPL Drafting Center
Document Retention Key	DC4

5.3.6.3 Interface Control Documents – many

Purpose	ICDs define the physical interfaces between two separately deliverable items when the mutual boundary area is not controlled by a single developmental (“design to”) specification (BSPEC).
Review and Approval	Prepared by: WBS Manager on one side of the interface Reviewed by: WBS Manager on the other side of the interface and cognizant Project Engineers Approved by: NCSX Systems Engineering Support Manager (facilitates reaching agreement)
Format	NCSX Procedure 003 (NCSX-PROC-003), Interface Control.
Naming Convention	As indicated in the above procedure. (See Section 5.2.6.2)
Storage Location	NCSX Engineering Web Page
Document Retention Key	DC4

5.3.6.4 Calculations and Analyses – many

Purpose	Calculations and analyses provide confirmatory evidence of the soundness of the proposed design
Review and Approval	Prepared by: Cognizant Engineer Checked by: Assigned individual assigned to check the calculation by the responsible WBS Manager
Format	Per PPPL Engineering Procedure 033, Design Verification.
Naming Convention	As indicated in Section 5.2.6.3 of this Document and Records Plan.
Storage Location	NCSX Engineering Web Page
Document Retention Key	DC4

5.3.6.5 Design Memoranda - many

Purpose	General means of providing design basis information that does not fit into one of the other established documentation/record types.
Review and Approval	Prepared by: Assigned responsible individual Approved by: None
Format	--
Naming Convention	As indicated in Section 5.2.6.2 of this Document and Records Plan.
Storage Location	NCSX Engineering Web Page
Document Retention Key	Determined by the content of the memorandum in accordance with Table 4-1

5.3.6.6 Field Activity Documents – many

Purpose	This category refers to a variety of documentation used to guide or document work occurring in the field. Most field work is governed by procedures, sometimes called a traveler document. Examples of such field activity documents are: • Completed installation procedures with data entered into the run copy - governed by ENG-030 • Hydrostatic testing results – governed by ENG-014 • Lift data sheets – governed by ENG-021 • In-house manufacturing records - In addition, unique field activity documents may be developed for NCSX for special purposes not covered by lab-wide procedures.
Review and Approval	If governed by an existing NCSX procedure, the applicable procedure specifies the review and approval requirements. If governed by an existing PPPL procedure, the applicable procedure specifies the review and approval requirements. Otherwise, determined by the WBS Manager.
Format	If governed by an existing NCSX procedure, the applicable procedure specifies the format. If governed by an existing PPPL procedure, the applicable procedure specifies the format. Otherwise, determined by the WBS Manager.
Naming Convention	As determined by the applicable procedure or by the WBS if not governed by a particular procedure, consistent with the NCSX-specific requirements outlined in this Document and Records Plan.
Storage Location	PPPL Operations Center
Document Retention Key	DC-4

5.3.6.7 Design Review Records – many

Purpose	These documents provide the basis for design decisions made at specific monitoring points in the development of the design (e.g., preliminary, final)
Review and Approval	Prepared by: NCSX WBS Manager Reviewed by: Design Review Committee members Approved by: Engineering Manager
Format	Per appropriate PPPL and NCSX procedures and guidelines.
Naming Convention	Per type of record.
Storage Location	NCSX Engineering Web Page for all technical records with the exception of drawings. Drawings will be stored in the Pro/INTRALINK database.
Document Retention Key	DC4

5.3.6.8 Engineering Change Proposals (ECPs) – many

Purpose	These documents describe the authorized changes to the technical, cost and schedule baseline
Review and Approval	Prepared by: NCSX Cognizant Engineer Reviewed by: WBS Managers, Project Engineers, QA Manager, Physics Manager (if impacted), Engineering Manager, Project Control Manager, ES&H Representative Approved by: NCSX Project Manager or DOE (depending on ECP Level)
Format	Per CMP
Naming Convention	Per CMP
Storage Location	NCSX Engineering Web Page
Document Retention Key	DC4

5.3.6.9 Engineering Change Notices (ECNs) – many

Purpose	These documents describe the authorized changes to the drawings
Review and Approval	Prepared by: NCSX Cognizant Engineer Reviewed by: RLM option whether others will review ECN. Approved by: NCSX RLM and Drafting Supervisor (who assigns ECN number)
Format	Per ENG-010
Naming Convention	Per ENG-010
Storage Location	NCSX Engineering Web Page
Document Retention Key	DC4

5.3.6.10 Requests for Deviation (RFD) – many

Purpose	These documents describe the authorized deviations to design requirements in specifications, bills of material, or models/drawings.
Review and Approval	Prepared by: NCSX Cognizant Engineer, PTR, or supplier Reviewed by: RLMs option whether others will review ECN. Approved by: NCSX RLM and Drafting Supervisor (who assigns ECN number)
Format	Per PROC-009
Naming Convention	Per PROC-009
Storage Location	NCSX Engineering Web Page
Document Retention Key	DC4

5.3.6.11 Job Hazard Analyses (JHA) – many

Purpose	Identify existing and potential workplace hazards and evaluate the risk of worker injury or illness associated with job task activities.
Review and Approval	Prepared by: NCSX Cognizant Engineer Reviewed by: Industrial Hygiene and other reviewers designated by the RLM.. Approved by: NCSX RLM
Format	Per ESH-004
Naming Convention	Per ESH-004
Storage Location	Industrial Hygiene Files
Document Retention Key	DC4

5.3.6.12 Work Planning Forms

Purpose	Key work planning document for all phases of projects designed and constructed at PPPL. Documents work planning logic in the form of a checklist of activities and deliverables needed.
Review and Approval	Prepared by: NCSX Cognizant Engineer Reviewed by: Reviewers designated by the RLM.. Approved by: NCSX RLM
Format	Per ENG-032 and NCSX-PROC-004
Naming Convention	Numerical sequence per ENG-032
Storage Location	PPPL Work Planning Form web site.
Document Retention Key	DC4

5.3.7 NEPA Documentation

5.3.7.1 Environmental Assessment (EA) – unique

Purpose	This document provides an overview of the environmental impact of the NCSX Project
Review and Approval	Prepared by: NCSX ES&H Engineer Approved by: DOE
Format	General EA content requirements specified in 10CFR1021 and 40CFR1508.9
Naming Convention	DOE/EA-1437 (DOE assigned designator)
Storage Location	NCSX Engineering Web Page
Document Retention Key	DC2

5.3.7.2 NEPA Planning Forms – many

Purpose	This document provides an assessment of the environmental impact of a proposed project/modification.
Review and Approval	Prepared by: Cognizant Engineer Reviewed by: NCSX RLM Approved by: PPPL NEPA Compliance Officer
Format	ESH-014 or equivalent Project Standards
Naming Convention	PPPL NEPA Compliance Officer assigns unique sequential number to each document. Ability to sort to obtain only those addressing NCSX.
Storage Location	Retained by: Cognizant Engineer and the NEPA Compliance Officer.
Document Retention Key	DC2

5.3.7.3 Safety Assessment Document – unique

Purpose	This document provides an overview assessment of the as-built project on the environment and its impact the safety of the public.
Review and Approval	Prepared by: NCSX ES&H Engineer Approved by: PPPL Safety Review Committee (SRC)
Format	PPPL ESHD – 5008, Section 11
Naming Convention	NCSX-SAD- -XX_YY where XX is the revision number and YY is the level of approval (e.g. draft [dA] or approved [signed
Storage Location	NCSX Engineering Web Page
Document Retention Key	DC2

5.3.7.4 Other ES&H/NEPA Records - many

There are additional ES&H and NEPA records that are maintained about projects by the ES&H Division. Some of these records have already been identified and discussed elsewhere in this plan, but the table below summarizes those type of documents:

Record Type	Purpose	Applicable Procedure
Job Hazard Analyses (see Section 5.3.6.10)	Identify existing and potential workplace hazards and evaluate the risk of worker injury or illness associated with job task activities.	ESH-004
Radiologically Controlled Area Access Logs	Establishes the administrative controls for entries into radiologically controlled areas.	ESH-008
Radiation Work Permits (RWPs)	Establishes requirements for access to and work in Radiologically Controlled Areas and on radioactive equipment and components.	ES&HD 5008, Section 10; OP-AD-113
Confined Space Permits	Establishes requirements for entering and working in permit required confined spaces.	ES&HD 5008, Section 8
Chemical & Non-Chemical Requisition Safety Reviews	Documents safety reviews of proposed purchases of chemical and certain non-chemical items and equipment.	ES&HD 5008, Section 8
Laser Safe Operating Procedures (LSOPs)	For Class IIIB & IV lasers, a set of operating instructions for a particular laser or laser system that specifies measures which, if followed, will ensure safe and correct use of the laser or laser system.	ES&HD 5008, Section 3
Safety Certificate	A document posted in the Control Room that constitutes PPPL approval to conduct NCSX operations within the constraints indicated therein.	ES&HD 5008, Section 11
Storage Location	PPPL ES&H Files	
Document Retention Key	Specified by ES&H/IS Record Retention Inventory and Schedule: http://www-local.pppl.gov/eshis/ESHIS-records.pdf .	

5.3.8 Quality Assurance Records

5.3.8.1 Quality Assurance Records - many
All records are maintained and controlled per Quality Assurance internal document, QP-002, Quality Assurance Records.

Record Type	Purpose	Applicable Procedure
Audits	Document results of audits and surveillances on NCSX, the findings, and the corrective action taken to resolve the findings.	QA-002
Risk Acceptance Plan	Documents inspection plan for an activity.	QA-004
Nonconformance Report	Documents non conformances and their resolution. The definition of nonconformance from QA-005 is: "Any deficiency in characteristic, documentation, design, function, or procedure that renders the quality of an item or activity unacceptable or indeterminate."	QA-005
Storage Location	PPPL QA Files	
Document Retention Key	Specified in QP-002 available at http://www-local/qa/QAIntPol_Proc/Pol&ProcIndex.shtml	

5.3.9 Training Records

5.3.9.1 Training Records – many

Purpose	• Course Content - documents content of training programs. • Training attendance and completion - documents the individuals who completed each training program.
Review and Approval	Prepared by: Human Resources, Engineering, or NCSX Approved by: Human Resources
Format	TR-001, Laboratory Training Program
Naming Convention	Per TR-001
Storage Location	PPPL Training Records maintained by the PPPL Training Office in Human Resources.
Document Retention Key	As specified by the PPPL Office of Human Resources.

5.3.10 Procurement Contracts, SOWs, and Deliverables

5.3.10.1 Contracts – many

No special format prescribed. Will follow Procurement Department requirements.

5.3.10.2 Statements of Work – many

Purpose	These documents detail work requirements.
Review and Approval	Prepared by: NCSX Contract Technical Representatives Reviewed by: WBS Manager and NCSX QA Representative Approved by: NCSX Engineering Manager (or designee)
Format	PPPL Procedure ENG-006 as modified by specific NCSX requirements.
Naming Convention	NCSX-SOW-wbs#-sow#-rev# (Document names assigned by cognizant WBS Manager per prescribed convention)
Storage Location	PPPL Procurement Files
Document Retention Key	DC4

5.3.10.3 Procurement Deliverables - many

Purpose	This includes records provided to NCSX by a supplier as a result of contractual requirements. They provide evidence of the quality of procured items. Examples of such records are: • Manufacturing, Inspection, and Test (MIT) Plan • Reliability and Maintainability Documents • Workmanship Standards • Completed Release for Shipment Form • Process History, which includes Certificates of Compliance, Material Certifications, Planning & Control Documents, Inspection Reports, Test Reports, Supplier NCRs, and Personnel Qualifications and Certifications • Quality Assurance Plan • Quality Assurance Program Manuals
Review and Approval	Prepared by: Supplier Approved by: Supplier or NCSX, as specified in the contract. ***The PTR shall be responsible for ensuring that all required documentation is stored as per PPPL requirements.***
Format	Supplier specified
Naming Convention	As specified in contract – should relate to specific contract.
Storage Location	• PPPL Procurement Files for direct contracts. • NCSX Engineering for SOWs • All the other documents are stored per QA-003 in the PPPL Operations Center or a satellite location (e.g., NCSX Project files). Electronic records shall be stored on the Electronic NCSX Project Files in a secure site. Supplier submittals provided in hard copy only shall be stored in the PPPL Operations Center.
Document Retention Key	DC4 for manufacturing records, otherwise DC7

5.3.10.4 Procurement Sensitive Correspondence with Suppliers

Purpose	This includes records provided by the NCSX Project to a supplier or by a supplier that contain procurement sensitive information that should not be shared with other suppliers or in public. They generally addresses the following topics: • Correspondence to the supplier relative to technical issues that may be procurement sensitive • Weekly reports from suppliers
Review and Approval	Prepared by: NCSX Project or a Supplier Approved by: Supplier or NCSX, as specified in the contract
Format	NCSX specified or Supplier specified
Naming Convention	As specified in contract – should relate to specific contract.
Storage Location	NCSX secure web site or PPPL Procurement files
Document Retention Key	DC4 for manufacturing records, otherwise DC7

5.3.11 Other Documents

5.3.11.1 WBS Dictionary – unique for each WBS

Purpose	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.
Review and Approval	Prepared by: NCSX Systems Engineering Support Manager Reviewed by: Impacted WBS Managers, Cognizant Project Engineer, and Engineering Manager. Approved by: NCSX Project Manager
Format	
Naming Convention	NCSX-WBS-rev#
Storage Location	NCSX Engineering Web Page
NCSX Record Key	DC-1

5.3.11.2 Milestone Dictionary – unique

Purpose	Provides the definition and completion criteria for each DOE milestone.
Review and Approval	Prepared by: NCSX Systems Engineering Support Manager Approved by: NCSX Project Manager
Format	
Naming Convention	NCSX-MILE-rev#
Storage Location	NCSX Engineering Web Page
NCSX Record Key	DC-1

5.3.11.3 Cost and Schedule Documents – many

Purpose	These documents provide the chronological development of the cost and schedule baselines. Include Primavera Project Planner (P3) information, Work Authorization Forms (WAFs), and other cost and schedule analyses.
Review and Approval	Prepared by: NCSX Project Control Manager Reviewed by: WBS Managers, Project Engineers, and Engineering Manager Approved by: NCSX Project Manager or DOE (depending on level of information)
Format	Utilize the P3 database
Naming Convention	
Storage Location	Details maintained on the P3 database kept by the Project Control Manager, but summary information posted on the NCSX Engineering Web Page
NCSX Record Key	DC6

5.3.12 NCSX Construction Information

5.3.12.1 Supplier Contract Information

Purpose	These documents provide the vendor technical "as-built" information, schedules, weekly and monthly reports, and other NCRs and requests for deviations as well as the NCSX Project assessments and decisions.
Review and Approval	Prepared by: Vendor for Contact submittals and the PTR for NCSX Project Assessments. Reviewed by: PTR, WBS Managers, Project Engineers, and Engineering Manager Approved by: PTR
Format	Formal vendor submittals, pertinent e-mails between the vendor and the PTR, and NCSX Project assessments.
Naming Convention	Determined by suppler, but should be descriptive as to the date, component and description to facilitate retrieval at a later date.
Storage Location	PPPL Network 'P' Drive
NCSX Record Key	DC4

Note: Sensitive contract information should not be stored on open-access sites. See Section 5.3.13 below.

5.3.12.2 NCSX Project Construction/Fabrication Data

Purpose	This data set documents internal metrology data and photographs taken by NCSX Project personnel upon receipt of vendor supplied components to be utilized for fabrication and assembly processes. The metrology data is also used as input for dimensional control analyses and modifications to Pro/E models. Additionally, machine assembly metrology and other pertinent information and photographs are documented and recorded for archiving.
Review and Approval	Prepared by: The responsible set of technicians and other job managers and supervisors.. Reviewed by: ATI, WBS Managers, Project Engineers, and Engineering Manager Approved by: ATI
Format	Raw metrology data, refined dimensional control analyses based on this data, refined metrology data re-formatted for use in the Pro/E models, pertinent correspondence, etc.
Naming Convention	Date (MO_DY_YR)_Component_Description or other acceptable and descriptive format determined by the responsible engineer. However, must be in a format and descriptive enough to enable ready retrieval at a later date.
Storage Location	PPPL Network 'P' Drive
NCSX Record Key	DC4

5.3.13 Contract Sensitive Information

Purpose	This information contains contract-sensitive information and correspondences between suppliers and the NCSX Project.
Review and Approval	Prepared by: The supplier and/or PTR. Reviewed by: ATI, WBS Managers, Project Engineers, and Engineering Manager Approved by: PTR. If impacting contract terms, the PPPL Procurement Representative will formally transmit to the supplier.
Format	Supplier reports and pertinent correspondence, etc.
Naming Convention	Determined by the supplier or PTR. However, must be in a format and descriptive enough to enable ready retrieval at a later date.
Storage Location	PPPL Network 'P' Drive
NCSX Record Key	DC4

NOTE: This is a secure site with very limited access. The NCSX Project Administrator (or designee) is the only person with total read-write access.