



National Spherical Tokamak Experiment

**NSTX**

QUALITY ASSURANCE PLAN

NSTX-PLAN-QAP-023

**Revision 1**

**January 31, 1997**

*Signatures are available in the official NSTX files.*

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## RECORD OF REVISIONS

Revision	Date	Resp. Ind.	Description of Change
0	5/96	Malsbury	Initial Release.
1	1/97	Malsbury	Revised to update column 3 to reflect current NSTX procedures.

## 1.0 PURPOSE

The National Spherical Tokamak Experiment (NSTX) is a new high-beta, ultra-low-aspect-ratio spherical tokamak to be constructed at the Princeton Plasma Physics Laboratory (PPPL), making significant use of existing facilities, components, and infrastructure at PPPL. The NSTX will enable the investigation of high temperature collisionless Spherical Tokamak (ST) plasmas.

This document defines the Quality Assurance Plan for this project. This Plan satisfies the requirements of the PPPL Institutional Quality Assurance Plan.

## 2.0 RELATED DOCUMENTS

The following are related documents:

- The PPPL Institutional Quality Assurance Plan (IQAP), EQP-004

## 3.0 THE QUALITY ASSURANCE PLAN

PPPL Quality Assurance requirements are described in the Institutional Quality Assurance Plan (IQAP). Implementation of the QAP is accomplished at the highest level through Laboratory policies and at lower levels by Laboratory-wide, Project, Department, and Division procedures.

The Appendix to this Plan contains the list of Laboratory wide and NSTX policies and procedures which together implement the requirements of the IQAP. This Appendix is a table with three columns. The first column contains the paragraph title and associated paragraph number of the IQAP for each category of requirements. Refer to the IQAP for the descriptions of these categories. The second column lists the PPPL Policies that implement the requirements of this category. The third column lists the PPPL Procedures and NSTX documents (plans, procedures, etc.) that implement the requirements of the policies within the NSTX Project. In some cases an implementing procedure is not required.

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## Appendix

### List of NSTX Implementing Plans and Procedures for the Requirements of the PPPL Institutional Quality Assurance Plan

Quality Assurance Plan	Implementing Policies	Implementing Plans and Procedures*
2.0 Program	P-004 Quality Assurance/ Reliability P-012 Stop Work Authority P-001 Graded Approach P-075 Configuration Management O-xxx Various organization mission statements	NSTX Project Execution Plan PPPL Procedure 22.022, Stop Work Action NSTX-PROC-006, NSTX Configuration Control
3.0 Personnel Training and Qualification	P-008 Training P-028 Subcontractor Training Requirements for the PPPL Site	TR-001 Laboratory Training Program TR-002 Minimum Access Training and Escort Requirements TR-004 Laboratory Required Reading Program
4.0 Quality Improvement	P-026 Self Assessment and Oversight	QA-002 PPPL Audit/Surveillance Program QA-005 Control of Nonconformances QA-012 Corrective Action Request QA-014 Trend Analysis Program QA-017 PPPL Tracking and Trending System QA-019 Root Cause Analysis 22.019 Failure Modes, Effects & Criticality Analysis
5.0 Documents and Records	P-032 Hierarchy of Documents P-040 Vital Records Protection Program P-050 Quality Documents and Records P-013 Use of Procedures P-051 Review and Approval of Policies, Procedures, Plans, and Manuals P-075 Configuration Management	NSTX Documents & Records Plan NSTX-PROC-035 Document Distribution & Control

\* Some of the referenced Plans and Procedures were not available at the time of issuance of this revision. Approved Plans and Procedures may be found on the NSTX File Sharing System in the folder labeled "Project Control Documents Folder". Contact the NSTX Document Administrator (x3379) if assistance is needed.

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6.0 Work Processes	P-003 Environment, Safety, and Health Policy P-006 Conduct of Operations P-013 Use of Procedures P-027 ALARA P-036 Asbestos Management P-038 Control of Hazardous Energy Sources P-045 Working on Rotating Equipment P-046 Cable Tagging and Removal P-047 Employee Area Housekeeping P-048 Safety Analysis and Review System Program P-049 Authorization for Work on Electrical Systems P-052 Special Processes P-063 Handling, Shipping, and Storage Requirements P-075 Configuration Management	ENG-002 Control of Measuring and Test (MTE) Equipment ENG-011 Interlock Key Control ENG-021 Hoisting and Rigging Program ENG-024 Digging Permits ENG-026 Fire Detection and Suppression Systems 23.003 Technical Operations Preventive Maintenance 23.004 Identification and Control of Items Engineering Standard ES-MECH-002, Welding Fabrication 23.026 Hydrostatic and Pneumatic Testing ES&H Manual, ES&HD 5008 NSTX-PROC-003, Development of System Requirements Documents and System Design Description Documents
7.0 Design	P-010 Design Reviews P-075 Configuration Management	22.013 Reliability, Availability & Maintainability (RAM) Modeling & Apportionment ENG-019 PPPL Engineering Standards 23.009 Calculation Development & Checking Engineering Standard ES-MECH-002, Welding Fabrication NSTX-PROC-004 NSTX Design Verification NSTX-PROC-006 NSTX Configuration Control NSTX-PROC-005 Preparation, Review, and Approval of Specifications and Statements of Work

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8.0 Procurement	P-072 Quality & Procurements	PPPL Procurement Manual 22.017 Vendor Surveillance 36.003 Subcontract Proposal Evaluation Board (SPEB) Policy NSTX-PROC-005 Preparation, Review, and Approval of Specifications and Statements of Work
9.0 Inspection and Acceptance Testing	P-071 Inspection and Acceptance Testing	QA-004 PPPL Site Inspection Program QA-009 DCMAO Vendor Survey/Surveillance Delegation
10.0 Management Assessment	P-026 Self-Assessment and Oversight	-----
11.0 Independent Assessment	P-026 Self-Assessment and Oversight	QA-002 PPPL Audit/Surveillance Program

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