

PPPL	PRINCETON PLASMA PHYSICS LABORATORY	PROCEDURE	No. QA-004 Rev 3 page 1 of 4
Subject: QA/QC Site Inspection and Oversight	Effective Date: January 31, 2018	Initiated by: Head, QA/QC	
	Supersedes: QA-004, R2, dated 9/23/16	Approved: Director	

Management System (Primary): 12.00 Assurance and Improvement

Management System Owner: Head, QA/QC

Management Process: 12.30 Quality Control Inspections & Acceptance Testing

Process Owner: Head, QA/QC

Subject Matter Experts (SMEs): Head, QA/QC

Applicability

Quality Assurance/Quality Control (QA/QC) inspections and oversight per this procedure is mandatory for work activities at PPPL that have graded approach risk classifications of A-1 or A-2, which are determined by applying the graded approach as described in the PPPL QA Program Description (QAPD.) The Responsible Engineer (RE) approves A-1 and A-2 inspection and test plans. QA/QC inspections and oversight should also be considered and requested for activities classified as A-3, which are approved by the Cognizant Individual (COG.) Inspection and test details are also included in Travelers/Manufacturing Inspection and Testing Plans. The graded approach must be applied in accordance with the chart below.

Function	Requirement and Final Approval Authority		
	A-1	A-2	A-3
Inspection and Test Plans	Required (Responsible Engineer)	Required (Responsible Engineer)	Optional (Cognizant Individual)
Approval of Test Results	Required (Responsible Engineer)	Required (Responsible Engineer)	Optional (Cognizant Individual)

This procedure does not cover QA/QC surveillances, assessments, audits, supplier oversight and inspections at their facilities.

Introduction

Inspections and testing are the processes for verifying that the work or items meet requirements. Attachment 1 contains the list of inspections that may be performed and the information needed for each type. Each person is responsible for the quality of his or her own work, including ongoing and final reviews and inspections to verify that process requirements are met. In addition, final acceptance of work and items that are classified as A-1 or A-2 must be based on inspections or tests conducted by persons other than those performing the work in accordance with Quality Inspection Plans (QIP) and requirements documents that are approved by the RE. QIPs document inspection and

test requirements including associated acceptance criteria needed to demonstrate that critical attributes of performance requirements are met. Inspections and tests specified by QIPs are performed by personnel who meet special training, qualification or certification requirements (e.g. nondestructive testing certification.) A template for QIPs is provided in Attachment 2. The QA/QC Department performs these independent inspections and tests and manages the inspection and oversight program. At times, other parties may be authorized to perform independent inspections, tests, and oversight, and this must be approved by the Head of QA/QC.

Inspections are coordinated with the Cognizant Individual assigned responsibility for specific jobs. Inspections verify conformance to requirements and acceptance criteria defined by the Cognizant Individual in various work documents. The RE reviews and approves the results of inspections and tests for A-1 and A-2 work and items.

Reference Documents

P-071 *Inspection and Acceptance Testing*

QA-005 *Control of Nonconformances*

EQP-004 *PPPL Quality Assurance Program Description (QAPD)*

Procedure

Inspections and Oversight by QA/QC

Note: Selection of inspection and test scope, limits and methods shall consider and preclude potential component damage or degradation, unless destructive testing is specified for components that will not be put in service.

Responsibility

Action

Cognizant
Individual

1. A. Develops job requirements documents (e.g., Specifications, Statements of Work, Installation Procedures, Shop Work Requests, Travelers, Drawings, etc.) for items to be procured, fabricated, and/or installed. Assures that these documents contain appropriate inspection and test requirements including the associated acceptance criteria. Identifies any hold points where verification by QA/QC is required before continuing with the activity.
- B. Provides a copy of these job requirements documents to QA/QC.

QA/QC

2. Develops a QIP based on the job requirements documents and with appropriate input from the Cognizant Individual. Identifies the inspections, tests, and oversight that will be performed and any hold points. Acceptance criteria must be clearly identified or referenced in the QIP. Attachment 2 shows a sample QIP.
3. Distributes the QIP to the Cognizant Individual and the Responsible Engineer (and where applicable, to the Field Supervisor.)

Cognizant
Individual

4. Reviews the QIP to assure that all hold points and test requirements specified in step 1 have been appropriately incorporated in the QIP.
5. A. Approves A-3 QIPs within 5 working days, or provides comments or required changes and returns the QIP to the QA/QC author; or
B. Obtains Responsible Engineer (RE) review and approval of A-1 and A-2 QIPs.

Responsible
Engineer

6. Reviews A-1 and A-2 QIPs, and when all comments are satisfied, approves the QIP and returns it to the QA/QC author.

Cognizant
Individual

7. Notifies QA/QC prior to start of work and prior to each hold point listed in the work documents. For scheduling purposes, notice would be a minimum of 2 working days prior to the activity.

QA/QC

8. Performs and documents the inspection, testing, and oversight activities as described on the QIP and/or work documents, and determines if job requirements are met. Maintains a log of oversight activities.
9. Informs the Cognizant Individual of issues and the status of oversight activities and results.
10. Issues Nonconformance Reports for nonconforming conditions in accordance with procedure QA-005.
11. Signs completed QIP documentation when activities are completed and closes the QIP in the database.
12. Submits QIP documentation to Head, QA/QC for closeout review.

Head QA/QC

13. Reviews the submitted QIP package and, if documentation of QA/QC oversight is completed and included or referenced, signs closeout of the QIP form and enters closeout in the QIP database.
14. Forwards completed QIP package to the QA Technical Specialist for scanning and filing.

QA Technical
Specialist

15. Scans and files completed QIP and related documents into QA server (QA Area) and sends copy of completed QIP records to the Operations Center.

Training

QA/QC

A. Target Audience: All PPPL Staff

Instructor: Head, QA/QC:

☒ Read only☒ Standard Email distribution only

Frequency:

☒ Upon Revisions and TCRs of this procedure

QA/QC

B. Target Audiences: Cognizant Individuals, Project Managers, and Responsible Engineers in the Work Planning System; all QA staff

Instructor: Head, QA/QC

Training Method:

☒ Read only☒ Email distribution to wpcog_rlm@pppl.gov, Cognizant Individuals, Project Managers, and Responsible Engineers email group☒ Email distribution to QA/QC email group

Frequency:

☒ Upon Revisions of this procedureRecords Requirements Specific To This Procedure

Records Custodians must assure records are maintained as follows:

Record Title	Record Custodian	Location	Retention Time
Quality Inspection Plan & Supporting QC records	QA Technical Specialist	QA Database	Destroy when 10 years after date of issue. <i>Reference: Admin 17 Cartographic, Aerial Photographic, Architectural, Engineering, And Facility Management Records (17.c)</i>

Attachments

1. Inspection Services by Quality Assurance/Quality Control
2. Sample Quality Inspection Plan (QIP)

Quality Assurance provides the following typical inspection services. Individuals should contact Quality Assurance if additional unspecified services are desired.

Inspection Type	Inspection Service Provided	Information Required
Electrical	<ul style="list-style-type: none">• In process inspection of raceways, wiring, panel boards, lighting, motors, grounding, terminations, and devices.• Witnessing tests such as cable ring out, megger, hi-pot. Assembly and/or installation of components that the work planning form identified have the potential for major or serious programmatic consequences.	<ul style="list-style-type: none">• Drawings and/or specifications indicating desired inspections and acceptance criteria.• List of applicable codes, standards, or other requirements.
Mechanical Inspections: <ul style="list-style-type: none">• Receiving Inspections per PQA clauses & PO & Dwgs.• In-Process per IPs, QIPs, Work Order.	<ul style="list-style-type: none">• Inspections of parts, assemblies, components, materials, etc. supplied by subcontractors/vendors to ensure compliance with PPPL procurement contracts and established quality standards.• Use standard metrology tools, to inspect machined parts and assemblies for conformity to design requirements.• In process visual & dimensional inspection of piping, hoses, valves, fittings, instruments, expansion joints, supports, process tubing, mounting & setting of equipment, studs/anchor bolts, and ground isolation.• Witness of torqueing, pressure, and vacuum testing. Assembly and/or installation of components that the work planning form identified have the potential for major or serious programmatic consequences.	<ul style="list-style-type: none">• Drawings and/or specifications indicating desired inspections and acceptance criteria.• List of applicable codes, standards, or other requirements.• Procurement Quality Assurance clauses & PO

Inspection Capabilities of Quality Assurance**Page 2 of 2**

Inspection Type	Inspection Service Provided	Information Required
Non-Destructive Examinations	<ul style="list-style-type: none">• AWS Certified visual inspections of welding and brazing. Dye penetrant and magnetic particle testing for information purposes only. Visual examination of cadwelds and explosive welding.• Coordinate external services for NDE inspections for acceptance, as necessary.	<ul style="list-style-type: none">• Drawings and/or specifications indicating desired inspections and acceptance criteria.• List of applicable codes, standards, or other requirements.
Source Inspections <ul style="list-style-type: none">• Per SOW, Task Order at supplier facilities.	<ul style="list-style-type: none">• Perform dimensional and physical inspection of mechanical parts and assemblies, first articles, discrepancy reports, and inspection reports in accordance with PPPL's Procurements Contract and approved plans, procedures, and customer requirements	<ul style="list-style-type: none">• PO, PQA Clauses, Drawings and/or specifications indicating desired inspections and acceptance criteria.• List of applicable codes, standards, or other requirements.

Finally, in addition to the above requested inspections, QA/QC staff, in their normal duties in the field, inspects the work conditions to assure that codes and standards are being implemented, and that the QA Program requirements are being followed.

NOTE: This is a typical Quality Inspection Plan (QIP.) Master QIP forms are maintained online by QA/QC.

Princeton Plasma Physics Laboratory Quality Inspection Plan QIP No: 4203	
Status: Closed	Issued Date: 6/9/2016
Job Type: IP	Job Doc. No: D-NSTX IP-3843
QIP Author: Boscoe John	WPF No: WPF-2135
Vendor:	Project: NSTX-U
Department: Plasma Science & Technology	Division: Diagnostic Development
Cog Person: F. Jones	Inspector: Gurbisz Kevin
<u>Title or Material Description:</u> NSTX-U Transmission Grating Imaging Spectrometer Electrical Installation	
<u>Inspection Plan Description (include drawing #'s, procedures, etc. if applicable):</u> Verify D-Site work permit Attend/Obtain pre-job/JHA brief Verify Lock out - Tag out - safing of systems per as required Verify that cabling, raceway and equipt. are installed per NEC, Lab & drawing requirements and Sect. 8 of IP Verify that grounding is installed per NEC, Lab & drawing requirements and step 8.1.6 of IP Verify labeling per Sect. 8.1 and 9 of IP Perform final inspection/walkdown with Cog or designee EWP # 391E	
<i>Inspector must verify that the RE aigned approval any inspection and test results for A-1 and A-2 items/services, or that the Cognizant Indicvual approved for A-3 on the insepection and test documentation (e.g., signed the IP, test procedure, Traveler, MIT.)</i>	
<u>QIP Completed:</u>	Inspector: kgurbisz Date: 6/28/2016 QA Manager: jgraham Date: 7/25/2016
<u>Distribution:</u> QC Files, Proj Doc Cntl (when closed), QA Manager, F. Jones (Cog), Gurbisz Kevin (Insp),	